Symposium OPEN IVR
Fax Option Guide

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About this guide

This guide shows how to install and configure the cards required to run the fax option. It also presents information about sending and receiving faxes, along with details about CLIFF—the Command Language Interface for Fax.

Prerequisites

This guide assumes the user has the following skills:

- expertise in installing computer hardware systems
- expertise in repairing computer hardware systems and components (replacing boards and components)
- knowledge of windowing environments and DOS/UNIX software
- expertise with diagnostic tools (loopstart or T1 diagnostic equipment, VOM, butt set, breakout box, datascope)
- experience on basic telephone switching circuits (telephone wiring, co and PBX switching circuits)
- basic data communications skills (protocols, signaling, hardware components)
- basic computer troubleshooting skills

Document organization

This guide is organized in the following manner:

- Chapter 1, “Introduction’, provides general information about the features of this text-to-speech implementation.
- Chapter 2, “Brooktrout Fax overview”, presents the system requirements for (and enhancements to) the Brooktrout fax feature.
- Chapter 3, “Brooktrout Fax installation and configuration”, instructs how to install the Brooktrout Fax cards, load a license file, and install and activate the Brooktrout fax option update software.
- Chapter 4, “GammaLink option overview”, presents the system requirements and features of the Gammalink fax option.
- Chapter 5, “GammaLink Fax installation”, instructs how to install the Gammalink Fax cards, load a license file, and install and activate the Gammalink fax option update software.
- Chapter 6, “Receiving faxes with RFAX”, describes how to create applications that receive faxes.
- Chapter 7, “Sending faxes with SFAX”, describes how to create applications that provide a variety of outbound fax services (such as fax delivery, fax on demand, and order notification).
- Chapter 8, “Command Language Interface for Fax”, describes the language which allows fax striping and fax overlays.
- Appendix A, “Fax card configurations”, shows the layout, switch settings, and various configuration requirements for the GammaLink CP-x/SC and Brooktrout TR-114 series fax cards.
- Appendix B, “Accessing the Service Console Interface”, shows how to access the Service Console Interface (SCI) from a dumb terminal, from a modem via the RS-232-C, or from the application processor via the Ethernet.

Supporting Release 4.0 documentation

Additional information about Symposium OPEN IVR 4.0 is presented in the following Release 4.0 documentation:

Document	NT number/ A0 number/ P0 number
Symposium OPEN IVR 4.0 Getting Started Guide	NTVE8201 A0732100 P0881271
Symposium OPEN IVR 4.0 Product Guide	NTVE8202 A0732101 P0881273
Symposium OPEN IVR 4.0 System Administration Guide	NTVE8203 A0732102 P0881274
Symposium OPEN IVR 4.0 Application Development Guide	NTVE8209 A0732108 P0881275
Symposium OPEN IVR 4.0 Cell Catalog	NTVE8208 A0732107 P0881276
Symposium OPEN IVR 4.0 Installation, Upgrade, and Maintenance Guide	NTVE8204 A0732103 P0881277
Symposium OPEN IVR Planning and Engineering Guide	NTVE8205 A0732104 P0881278
Symposium OPEN IVR 4.0 Error Messages Guide	NTVE8206 A0732105 P0881279

Symposium OPEN IVR 4.0 Web Option Guide	NTVE8210 A0732109 P0881281
Symposium OPEN IVR 4.0 SQL Server User Guide	NTVE8216 A0732115 P0881282
Symposium OPEN IVR 4.0 Service Console Interface Reference Manual	NTVE8207 A0732106 P0881284
Symposium OPEN IVR 4.0 VT100 Host Connectivity Configuration and Development Guide	NTVE8221 A0732120 P0881286
Symposium OPEN IVR 4.0 Text-to-Speech Option Guide	NTVE8213 A0732112 P0881292
Symposium OPEN IVR 4.0 Speech Recognition Option Guide	NTVE8212 A0732111 P0881293
Symposium OPEN IVR 4.0 Fax Option Guide	NTVE8211 A0732110 P0881294
Symposium OPEN IVR 4.0 CAS and ISDN Signaling Option Guide	NTVE8214 A0732113 P0881296
Symposium OPEN IVR 4.0 Integration Package for Meridian Link User Guide	P0881297 NTVE8215 A0732114
Symposium OPEN IVR 4.0 Prompt Import Utility Guide	NTVE8218 A0732117 P0881400
Symposium OPEN IVR 4.0 SNA Host Communications Guide	NTVE8227 A0732774 P0881750

Conventions used in this guide

Throughout this guide, several typographic conventions have been used to highlight certain types of information:

- Items that appear on the Symposium OPEN IVR screens are identified in quotes, for example:

  the “Timeout” part of the parameters window

- Field names, prompts, file and menu names, directories, accounts, and options are shown in a different typeface, for example:

  `/sci>`

  `sci/install` menu

  `/u/nortel/3270/getbalance.act` file

- Symposium OPEN IVR buffer and branch names are shown in all uppercase characters, for example:

  the CURRENT MESSAGE buffer

- Items you must type are shown in bold in a different typeface, for example:

  type **`tn5250`** at the prompt

- Variables shown in command lines appear in italics, for example:

  the `host_cfg`*n* file, where *n* is a variable representing a board number

- Key names you press are shown in angled brackets, for example:

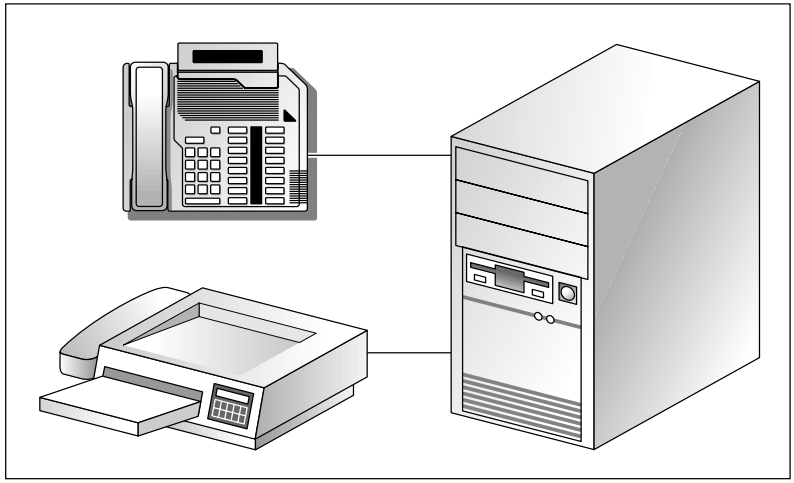
  the <F1> key

- Keyboards usually have keys named <Return> or <Enter> that perform the same function. For convenience, this guide uses the keyname <Enter> to represent both keynames.

Chapter 1: Introduction

The Symposium OPEN IVR fax option provides you with the resources to create interactive voice response applications that can send and receive faxes. Using this option, you can manipulate both fax and voice messages on Nortel's MRS/AP, MRS/Tower, and MRS/Rack voice systems (see Figure 1-1).

Figure 1-1: Integrating voice and fax



Symposium OPEN IVR provides two fax options: GammaLink and Brooktrout. These two options are detailed in later chapters of this guide.

Fax overview

The message-management facilities that you already use for voice messaging, such as scheduled delivery and outdialing, can also be used to send and receive faxes by including an RFAX or an SFAX cell in your application. In addition to integrating fax and voice mail in the same application, other typical applications that you can create using the fax option include fax on demand and software updates.

The RFAX cell enables your application to receive a fax and save it for immediate or future delivery to a specified fax machine. Voice storage numbers (VSNs) are assigned to store received faxes, the same as they are used to store voice messages. Consequently, you can store fax VSNs in message databases.

The SFAX cell allows your application to send one ASCII file followed by up to 30 TIFF files assigned as VSNs or fax messages. Therefore, your fax can consist of a single ASCII file, multiple TIFF files or messages, or a combination of both. The ASCII file can contain special commands that merge images and text to create a fax cover page.

General considerations

Keep the following points in mind before you use the fax option:

- Your MRS system must contain the fax option hardware and must have the fax option software installed and activated. Refer to Chapter 3, "Brooktrout Fax installation and configuration", and Chapter 5, "GammaLink Fax installation", for information on how to install and activate the fax option.
- Familiarize yourself with the software package used to create voice applications. Refer to the *Symposium OPEN IVR Application Development Guide* for more details.

Also, as you start to create a fax application, consider the following items and act on them as they apply to your particular application.

Channel allocations

Ensure that a sufficient number of inbound and outbound channels are available for your application. Refer to the *Symposium OPEN IVR System Administration Guide* for information on how to configure channels.

VSN thresholds

Through the system configuration file, you can allocate separate ranges of VSNs for various VSN categories. For example, you might define the following ranges:

- system prompts: 0–500 (reserved for the system)
- application prompts: 1000–1500
- prescanned fax VSNs: 2000–3000 (for scanned-in TIFF files)
- fax messaging VSNs: 4000 and up (used by the system to store received faxes)

Logging results

You may want to include in your application a mechanism for logging specific results from each session. You can log these results by writing them to a file or to a database.

Retries and time-outs

Both the RFAX and SFAX cells contain a TIMEOUT branch and a NO FAX RES branch. The TIMEOUT branch is taken if the MRS system and fax machine cannot synchronize at the start of transmission. The NO FAX RES branch is taken if the fax resources on the fax option card are not available to the cells within a specified time.

It is recommended that you design your application so that if either of these branches is taken, the application will try again a specified number of times before quitting. To specify retries, include error-handling capabilities in your cleanup handler that will rerun the application until a maximum number of tries is reached. For example, you could have the application rerun three times before quitting. Use the DELV cell to reschedule the application. The buffers DIGITS and DATA EXCHANGE #1 – #5 are available to pass information to the cell.

Sending a cover page

If you create an application to send a fax that includes a cover page, you need to determine how the cover page is designed and what fax objects you need to scan and load into the MRS system before running the application. Chapter 7, “Sending faxes with SFAX”, contains details on how to create the cover page.

Types of files

In any application for sending a fax, consider the types of files that will be sent: ASCII or TIFF. Chapter 7 provides instructions on how to handle each of these file types.

Chapter 2: Brooktrout Fax overview

The Brooktrout Fax option for Release 4.0 is an updated version that provides enhancements to the Symposium OPEN IVR fax functionality.

> ***Note:*** The Brooktrout Fax option for Release 4.0 is available for PEB environments only.

System requirements

Before installing the Brooktrout Fax option, make sure that your system has the following:

- a PEB system configuration
- a license file supporting fax functionality on an AP, Brooktrout on an MRS, and both fax and Brooktrout on an MRS/AP.

Enhancements

When activating the Brooktrout Fax option, you can independently specify:

- data encoding type
  - mu-law (North American standard), or
  - A-law (international standard)
- PEB timeslot allocation
  - 24 time slots (North American standard), or
  - 32 time slots (international standard)
- number of fax ports on the board

Chapter 3: Brooktrout Fax installation and configuration

Before proceeding, verify that the system requirements defined in Chapter 2 are met.

Installation overview

To install the Brooktrout Fax option update, you need to perform these tasks. (If there is an older version of any software, remove it first).

1 Install the Brooktrout Fax cards (if necessary).

2 Load a license file for your MRS system that supports fax functionality.

3 Install the Brooktrout Fax option update software.

4 Activate the Brooktrout Fax option.

5 Restart the MRS.

The following sections describe how to install the Brooktrout Fax option hardware and software onto your MRS system.

Installing the Brooktrout fax card

Note: The Symposium OPEN IVR Release 4.0 Fax Option supports the 1 Mbyte versions of the Brooktrout fax cards only. As a result, this release does not support Brooktrout fax overlays, which require the 2 Mbyte version of the cards. Any overlays that you may require will have to be set up using the GammaLink card, which is compatible with SCbus systems only.

General considerations

The Brooktrout card resides in a PEB environment. Refer to Appendix A, "Fax card configurations", for information about the proper location of cards and terminators in a PEB environment.

Installation procedure

To install the fax cards, follow these steps.

CAUTION

Risk of electrostatic discharge

Always observe proper precautions when working with the system. Be sure to follow all applicable electrostatic discharge (ESD) guidelines during configuration and installation of the option cards. Wear an antistatic wrist band when handling the cards.

1. Shut down the IVR system as described in the *Installation, Upgrade, and Maintenance Guide*.
2. Once the shutdown process is complete, turn off the power to the system.
3. Unpack the Brooktrout fax card(s) and remove it (them) from the antistatic bag.
4. Configure the Brooktrout Fax option card(s) as shown in the configuration drawings in Appendix A, "Fax card configurations".

a If you install Brooktrout cards in a low-density system (separate network interface and voice-processing cards), then remove the PEB terminators and place the Brooktrout cards between the network interface and voice-processing cards as shown in Figure A-1 in Appendix A, “Fax card configurations”.

b If the system is high-density, you may place a Brooktrout card at the end of the PEB and install a terminator on it.

Refer to Appendix A, “Fax card configurations”, for the proper location of cards and terminators in the MRS.

5 Open the system and find an open slot where you can install the Brooktrout fax option card(s).

The Brooktrout fax option card(s) must be installed between two Dialogic cards. (Move cards in the system if necessary to accommodate this requirement).

6 Remove the PEB cable from any cards that will be connected to the Brooktrout fax option card(s).

7 Install the Brooktrout fax option card(s) in the system. Do not screw in the card(s) at this time.

8 Connect all the cards using the PEB cable supplied with the Brooktrout Fax option.

You may need to lift some cards from their slots to attach the PEB cable.

9 Make sure that the card(s) are properly seated and aligned before installing the card retaining screws.

10 Install and secure the card retaining screws.

11 Power up the system and allow it to boot normally.

The hardware installation of the Brooktrout Fax option is complete.

The license file

The License file is unique to your system configuration. Each time your configuration changes in any way, you have to load a new license file to enable its functionality.

> ***Note:*** The license file is always generated by Nortel—whether for initial installations or for upgrades.

Before you begin

Before installing licenses, make sure of the following:

- the build process has been completed successfully
- the network (between the APs and MRSs) is functioning properly
- remote commands (for example, `rcp`) work properly

Installing the License file

To install the license file, follow these steps.

1 Insert the license diskette into the floppy drive of the main AP.

This diskette is DOS formatted, and contains any of the following files.

File	Contains	For
w1234500.kcd	KDS (version 2.0) enveloped licensed files	AP1
w1234501.kcd		MRS1
w1234502.kcd		MRS2
w1234503.kcd		MRS3
w1234504.kcd		MRS4
w1234588.kcd		MRS/AP
w1234599.kcd		redundant AP (AP2)

The diskette could also contain raw (unenveloped) versions of license files.

File	Contains	For
w1234500.kcd	raw licensed file	AP1
w1234501.kcd		MRS1
w1234502.kcd		MRS2
w1234503.kcd		MRS3
w1234504.kcd		MRS4
w1234588.kcd		MRS/AP
w1234599.kcd		redundant AP (AP2)

Note: Any files named differently from the above will *not* work.

2 At the UNIX prompt, type the following:

```
install_licenses
```

3 Monitor the progress of the installation.

If the installation of the licenses to an AP or an MRS was successful, the message `Successfully installed license for ...` is displayed.

Note: If there are any problems distributing the files to the different MRSs or APs, the following message is displayed:

```
Unable to copy license file for  ....
```

This indicates a problem with the network connection. Test your network connections with `ping` or `telnet`, and try again.

If there is a problem unwrapping a KDS enveloped license file, the following message is displayed:

```
Unable to extract license file for ....
```

This indicates a likely problem with either the diskette itself or the drive that you are using. Test both of these and then try the installation again.

4 Once the license file is successfully loaded, remove the disk from the disk drive.

5 Restart the OPEN IVR system. The license takes effect upon startup.

Installing the Brooktrout Fax option software

To install the Brooktrout Fax option update from CD-ROM, follow these steps.

1 Access the SCI and log in as **`service`**.

2 When the `/sci>` prompt displays, type `install` and press <Enter>.

A warning message appears on the screen indicating that if you proceed any further, the currently running process will be shut down. A prompt appears asking if you want to continue.

3 Type **`yes`** and press <Enter> to continue.

The SCI lists the install menu options, then displays the `/sci/install>` prompt.

4 From the `/sci/install>` prompt, type **`package`**, and press <Enter>.

The system displays the following options:

```
Select Media Device:
1. CD-ROM
2. Hard Disk          (local installs only)
Please enter your selection or q to quit []:
```

5 Type `1`, indicating the CD-ROM, and press <Enter>**.**

The system prompts:

```
Specify which host machine installing FROM and TO:
1. FROM  localhost      TO  localhost
2. FROM  remote host    TO  localhost
3. FROM   localhost     TO  remote host
Please enter your selection or q to quit []:
```

6 Make your selection depending on where the CD-ROM is located:

If the CD-ROM is on a:	And the fax resources are on:	Then select:
local server	local server	1
remote server	local server	2
local server	remote server	3

If you have an MRS/AP, select **1.** For unfolded systems which use the remote CD on the AP to install options on the MRS, select **2**. If you select **2** or **3**, you will see the prompt for the hostname of the remote machine.

Note: You should enter the full domain name or IP address if prompted for the remote hostname.

7 After the host information is gathered, you see the prompt:

```
Enter “c” to continue, “r” to redo, or “q” to quit
```

8 Type **c** and press <Enter>.

The system displays:

```
Insert installation CD into CD-ROM drive at host =>
localhost. Type q to quit or hit ENTER to continue:
```

9 Press <Enter> to continue.

The system displays:

```
Specify which packages will be installed:
(Enter y or n to select packages, or q to quit)
AP.............[n]?
MRS.............[n]?
License Manager..[n]?
```

10 Type **n** or press <Enter> at the “AP” and “License Manager” prompts. Type **y** at the “MRS” prompt and press<Enter>.

The system displays:

```
Enter “c” to continue, “r” to redo, or “q” to quit:
```

11 Type **c** and press <Enter>.

The system displays:

```
Select the TSP packages to be installed:
System packages...........[n]?
Speech technologies.......[n]?
Fax, E1/PRI, .............[n]?
DPD, Global Call..........[n]?
```

12 Type **n** or press <Enter> for all choices except “Fax, E1/PRI,” for which you type **y** and press <Enter>.

The system displays:

```
Installing Fax [n]?
```

13 Type **y** and press <Enter>.

The system displays:

```
GammaLink Fax Option for SCbus...[n]?
Brooktrout Fax Option for PEB....[n]?
```

14 Type **y** for “Brooktrout Fax Option for PEB” only and press <Enter>

The system displays:

```
Brooktrout Fax Option
Transferring files...
Installation complete.
The installation of the TSP Brooktrout Fax is now
complete.
Press ENTER to continue or “q” to quit:
```

Note: If a previous version of the Brooktrout Fax option is already installed on your MRS, you are prompted to press <Enter> if you want to replace the original fax option files with this update.

15 Press <Enter> and continue to the next step.

16 When prompted, select the appropriate interrupt vector. Since your hard drives have SCSI disk controllers, type **14**.

You are prompted to identify the Brooktrout fax card installed in your system:

```
Are you using 1 MByte Fax Card? [y/n]
```

17 Type **y** to identify the 1 Mbyte Brooktrout Fax cards.

The system displays:

```
Do you wish to continue the installation?
```

18 Type **y** at the prompt and press <Enter>.

The system displays:

```
Do you wish to relink the kernel now? (y/n).
```

19 Type **y** at the prompt and press <Enter>.

20 After you finish installing the Brooktrout Fax option, type **q** to return to the `/sci` prompt.

The installation is complete when the system displays the `/sci/install` prompt.

21 Proceed to the following section, "Activating the Brooktrout Fax option."

Activating the Brooktrout Fax option

After the Brooktrout Fax option components (hardware and software) are installed, you activate the option by accessing either the `/sci/install/setup` *or* `/sci/setup` menu (same menu). Access to this menu of utilities is restricted to trained personnel using service account privileges.

1 Access the SCI and log in as **`service`**.

2 From the `/sci/install/setup` menu, type **`options`** and press <Enter>.

The SCI displays the options menu:

```
/sci/setup> options
antares- Add or delete Antares generic DSP board
based TTS/ASR
vr/160- Add or delete VCS board
brooktrout- Add or delete brooktrout fax board
ptcbrd- Add or delete PTC board
hwsetup- Display the current hardware setup.
done- Return to the previous menu.
cancel- Return to the previous menu without saving
changes.
```

3 Type **`brooktrout`** and press <Enter>.

The SCI displays the prompt:

```
Please Enter the fax board number to edit =
```

4 Type the board number (for example, **1** if this is the first or only board) and press <Enter>.

The following prompt is displayed:

```
Current Fax Does Not Exist - Add it? = cancel
add - Add a new entry
cancel- Do not add the new entry
Fax Does Not Exist - Add it? =
```

Note: If the board is already installed and activated, you cancel and start again, specifying a different board number. Refer to "Reconfiguring the option" on page 3-11 for further information about reconfiguring the option.

5 Type **add** and press <Enter>.

The SCI displays this prompt:

```
Default PEB Number = 0
PEB Number =
```

6 Type the PEB number (0 if only one PEB cable) and press <Enter>.

The following prompt is displayed:

```
Current Type of data encoding to use? =
mu-law- Default data encoding used in the US
a-law- Default data encoding used in Europe
Type of data encoding to use? =
```

7 Type the appropriate data encoding type and press <Enter>.

The following prompt is displayed:

```
Current Number of timeslots on PEB bus =
24 - 24 timeslots on PEB bus
32 - 32 timeslots on PEB bus
Number of timeslots on PEB bus =
```

Note: Select 24 timeslots for T1 or loopstart, or 32 timeslots for E1.

8 Type the appropriate number of timeslots for the sampling you require and press <Enter>.

The following prompt is displayed:

```
Default Number of FAX Ports Per Board =
Number of FAX Ports Per Board =
```

9 Type the number of fax ports you intend to use (2, 4, or 8) and press <Enter>.

10 At the `/sci/install/setup/options>` prompt, type **done** and press <Enter> to complete the activation.

Restart the MRS

To enable the Brooktrout Fax option you installed and activated, restart the MRS.

1 At the `/sci/install>` prompt, type **`restart`** and press <Enter>.

The MRS system shuts down and then automatically reboots. Allow the system to boot up normally; it takes several minutes.

When the system comes up again, the Brooktrout Fax option update is installed.

Reconfiguring the option

To reconfigure the settings for the Brooktrout Fax option, first delete the current Brooktrout Fax configuration, then follow these steps.

1 Access the SCI and log in as **`service`**.

2 Access the `/sci/setup/options` menu.

3 Select the `brooktrout` option.

4 When prompted for the board to edit, type the number of the board you want to delete.

5 When prompted to cancel or delete, type **`delete`** and press <Enter>.

Reactivate the Brooktrout Fax option as described in “Activating the Brooktrout Fax option” on page 3-9.

Chapter 4: GammaLink option overview

This chapter provides information on the Symposium OPEN IVR GammaLink Fax Option, which is available for the MRS/AP, MRS/Tower, and MRS/Rack systems. The chapter includes the following sections:

- GammaLink fax option package components
- System requirements
- GammaLink fax features

GammaLink fax option package components

The Symposium OPEN IVR GammaLink Fax option is included on the Symposium OPEN IVR Release 4.0 CD.

Every shipment of Symposium OPEN IVR includes a license file, which specifies the options for that installation. The license file is available only on floppy disk.

System requirements

Before installing the GammaLink TTS option, make sure that your system has the following:

- an SCbus system configuration
- a license file supporting fax functionality on an AP, GammaLink on an MRS, and both fax and GammaLink on an MRS/AP.

GammaLink fax features

The GammaLink CP series of SCbus fax modules are available for MRSs in 4-port, 6-port, and 12-port configurations. You can have a maximum of 6 modules on your system, allowing a total of up to 60 physical fax ports for each MRS.

The GammaLink Fax option includes the following features:

- error reporting and logging
- A-law and mu-law support
- CLIFF (Command Language Interface for Fax) command support
- fax and forms overlay
- fax send and receive
- conversion of ASCII text to TIFF format

Error reporting and error logging

In the event of problems or errors, all available GammaLink and other error information is reported to the system event log to assist the debugging effort. The system event log is accessible by selecting the `log` option from either the `/sci/status` or the `/sci` menu.

For more information on the system event log or the Service Console Interface (SCI), refer to the *Symposium OPEN IVR Service Console Interface Reference Manual*.

A-law and mu-law support

When activating the TSP 4.0 GammaLink Fax option, the `/sci/setup/options` menu allows you to independently specify data encoding type (mu-law, North American standard, or A-law, international standard) and SCbus timeslot allocation (24 or 32 timeslots). See the section titled “Activating the GammaLink Fax option” on page 5-10 for more information about the `/sci/setup/options` menu.

CLIFF command support

This section explains the differences between the CLIFF command syntax for GammaLink Fax option and the syntax for the Brooktrout Fax option.

CLIFF commands function in a manner that ensures that no errors or unpredictable conditions occur from encountering unsupported commands, parameters, or options.

See Chapter 8, "Command Language Interface for Fax", for further information about CLIFF commands.

$HEADER

The GammaLink Fax option supports only one header for each fax transmission (for each set of files). The *last* $HEADER command encountered in the *first* ASCII file (such as in the cover page) is applied.

GammaLink Fax does not support the following $HEADER command parameters:

- -location (footer is not supported)
- -mode

$TEXT

GammaLink Fax does not support the TEXT command and disregards the command if encountered.

> ***Note:*** Some $TEXT command functionality may still be applied to a fax document using new options added to the $DOC_CNTRL command.

$PAGE_CNTRL

GammaLink Fax does not support the $PAGE_CNTRL command and disregards the command if encountered.

> ***Note:*** Some $PAGE_CNTRL command functionality can be applied to a fax document using new options added to the $DOC_CNTRL command.

$DOC_CNTRL

GammaLink Fax supports only one $DOC_CNTRL command for each set of files in a fax transmission. The option disregards any further $DOC_CNTRL commands in a fax transmission. Most of the $DOC_CNTRL parameters now affect the entire transmission rather than just one page or one text stripe.

The following $PAGE_CNTRL parameters are available under the $DOC_CNTRL command:

- -length
- -top_margin
- -bot_margin

The following $TEXT commands are available under the $DOC_CNTRL command:

- -left_marg
- -right_marg

Fax overlay capability

The GammaLink Fax option allows you to create an overlay, enabling you to superimpose the contents of your ASCII fax data file onto the overlay. The overlay can be any TIFF file that you load on the MRS.

See “Creating fax overlays” on page 8-2 for information on GammaLink overlays.

Chapter 5: GammaLink Fax installation

To install the GammaLink Fax option, you need to perform these tasks. (If there is an older version of any software, remove it first).

1 Install the GammaLink Fax cards.

2 Install the license file.

3 Install the GammaLink Fax option software.

4 Activate the GammaLink Fax option.

5 Configure the GammaLink Fax option.

6 Restart the system.

The following sections describe how to install the GammaLink Fax option hardware and software on your MRS system.

> ***Note:*** Before proceeding, ensure that your MRS system meets the system requirements described in Chapter 4, "GammaLink option overview".

General considerations

The GammaLink card(s) reside in an SCbus environment. Refer to Appendix A, "Fax card configurations", for information about the proper location of cards in an SCbus environment.

Installing the GammaLink fax cards

To install the GammaLink fax cards, follow these steps.

CAUTION

Risk of electrostatic discharge

Always observe proper precautions when working with the system. Be sure to follow all applicable electrostatic discharge (ESD) guidelines during configuration and installation of the option cards. Wear an antistatic wrist band when handling the cards.

1 Shut down the MRS system as described in the *Symposium OPEN IVR Installation, Upgrade, and Maintenance Guide.*

2 Once the shutdown process is complete, turn off the power to the system.

3 Unpack the GammaLink fax card(s) and remove it (them) from the antistatic bag.

4 Configure the cards(s) as shown in the configuration drawings in Appendix A, "Fax card configurations". For SCbus systems, the boards are terminated internally and do not require a terminator.

5 Open the system and find an open slot where you can install the GammaLink fax option card(s).

6 Remove the SC cable from the other cards that will be connected to the GammaLink fax card(s).

7 Install the GammaLink fax card(s) in the system. Do not screw the card(s) in yet.

8 Connect all the cards using the SC cable supplied with the GammaLink Fax option. You may need to lift some cards from their slots to attach the SC cable.

9 Make sure that the card(s) are properly seated and aligned before installing the card retaining screws. Install and secure the card retaining screws.

10 Power up the system and allow it to boot normally.

The hardware installation of the GammaLink Fax option is complete.

Appendix A, “Fax card configurations" illustrates the GammaLink Fax cards 4-, 6-, and 12-channel configurations. The tables in this appendix present the SWn (SW1 for 6- and 12-port, SW3 for 4-port) I/O Addressing.

The license file

The License file is unique to your system configuration. Each time your configuration changes in any way, you have to load a new license file to enable its functionality.

Note: The license file is always generated by Nortel—whether for initial installations or for upgrades.

Before you begin

Before installing licenses, make sure of the following:

- the build process has been completed successfully
- the network (between the APs and MRSs) is functioning properly
- remote commands (for example, `rcp`) work properly

Installing the License file

To install the license file, follow these steps.

1 Insert the license diskette into the floppy drive of the main AP.

This diskette is DOS formatted, and contains any of the following files.

File	Contains	For
w1234500.kcd	KDS (version 2.0) enveloped licensed files	AP1
w1234501.kcd		MRS1
w1234502.kcd		MRS2
w1234503.kcd		MRS3
w1234504.kcd		MRS4
w1234588.kcd		MRS/AP
w1234599.kcd		redundant AP (AP2)

The diskette could also contain raw (unenveloped) versions of license files.

File	Contains	For
w1234500.kcd	raw licensed file	AP1
w1234501.kcd		MRS1
w1234502.kcd		MRS2
w1234503.kcd		MRS3
w1234504.kcd		MRS4
w1234588.kcd		MRS/AP
w1234599.kcd		redundant AP (AP2)

Note: Any files named differently from the above will *not* work.

2 At the UNIX prompt, type the following:

install_licenses

3 Monitor the progress of the installation.

If the installation of the licenses to an AP or an MRS was successful, the message `Successfully installed license for ...` is displayed.

Note: If there are any problems distributing the files to the different MRSs or APs, the following message is displayed:

```
Unable to copy license file for  ....
```

This indicates a problem with the network connection. Test your network connections with `ping` or `telnet`, and try again.

If there is a problem unwrapping a KDS enveloped license file, the following message is displayed:

```
Unable to extract license file for ....
```

This indicates a likely problem with either the diskette itself or the drive that you are using. Test both of these and then try the installation again.

4 Once the license file is successfully loaded, remove the disk from the disk drive.

5 Restart the OPEN IVR system. The license takes effect upon startup.

Installing the GammaLink Fax option software

This section describes how to install the GammaLink Fax option software from CD-ROM and floppy disk.

To install the GammaLink Fax option, follow these steps.

1 Log in to the Service Console Interface (SCI) as **`service`**.

2 At the `/sci/` menu, type **`install`**. When prompted, type **`y`** to indicate that you wish to continue.

The SCI displays a warning message:

```
**********************************************
WARNING - Executing this option will cause the
system to be stopped. Once the Install Menu is
entered the only way to restart operations will
be to reboot the MRS.
```

```
*********************************************
Are you sure you wish to continue?
Current continue? = no
yes          - continue with operation.
no           - Return to previous menu.
        continue? =
```

3 Type **y** and press <Enter> to continue.

4 At the `/sci/install` menu, type `package` and press <Enter>**.** The system displays the following options:

```
Select Media Device:
1. CD-ROM
2. Hard Disk          (local installs only)
Please enter your selection or q to quit []:
```

5 Type **1** and press <Enter>.

The system displays the following options:

```
Specify which host machine installing FROM and
TO:

1. FROM localhost TO localhost
2. FROM remote host TO localhost
3. FROM localhost TO remote host
Please enter your selection or q to quit []:
```

6 Make your selection depending on where the CD-ROM is located::

If the CD-ROM is on a:	And the fax resources are on:	Then select:
local server	local server	1
remote server	local server	2
local server	remote server	3

If you have an MRS/AP, select **1.** For unfolded systems which use the remote CD on the AP to install options on the MRS, select **2**. If you select **2** or **3**, you will see the prompt for the hostname of the remote machine.

Note: You should enter the full domain name or IP address if prompted for the remote hostname.

After the host information is gathered, you see the prompt:

```
Enter “c” to continue, “r” to redo, or “q” to
quit
```

7 Type **c** to continue.

The system displays:

```
Insert installation CD into CD-ROM drive at host
=> localhost.
Type q to quit or hit ENTER to continue:
```

8 Insert the CD into the CD-ROM drive and press <Enter> to continue.

Note: The “localhost” name in the preceding step may be another hostname, depending on the type of installation.

The system displays:

```
Specify which packages will be installed:
(Enter y or n to select packages, or q to quit)

AP [n]?
MRS [n]?
License Manager[n]?
Enter “c” to continue, “r” to redo, or “q” to
quit:
```

9 Type **y** for the MRS package and type **c** to continue.

The system displays:

```
Select the MRS packages to be installed:

System packages[n]?
Speech technologies[n]?
Fax, E1/PRI, BRI[n]?
```

10 Type **y** for the Fax, E1/PRI, BRI package.

The system displays:

```
Installing Fax [n]?
   GammaLink Fax Development Package [n]?
   GammaLink Fax Option for SCbus[n]?
   Brooktrout Fax Option for PEB[n]?
```

11 Type **y** to all except the prompt for the Brooktrout Fax option.

12 Press <Enter> through the other option install prompts.

The system displays:

```
Enter “c” to continue, “r” to redo, or “q” to
quit:
```

13 Type **c** to continue.

If the GammaLink Fax option has been previously installed, you see the prompt to replace the original copy.

14 Type **y** to continue.

Note: You must remove the older version of the GammaLink Fax option first. GammaLink will not overwrite itself.

Several other messages appear before you see the prompt:

```
Do you wish to relink the Kernel Now? (y/n) [y]:
```

15 Type **y** and press <Enter>.

The system displays several informational messages.

When the installation is complete, the system responds with the following messages:

```
Installation complete.
The installation of the Gammalink Fax Option is
now complete.
```

16 When you see the prompt,

```
Press ENTER to continue or "q" to quit:
```

type **q** to quit.

17 When you see the prompt,

```
No other software packages selected.
Install another software package (y/n)?
```

type **n** and press <Enter>.

18 At the `/sci/install>` prompt, type **`restart`** and press <Enter>.

The MRS system starts coming down. The system automatically reboots once it reaches the shutdown state. Allow the system to boot up normally; it takes several minutes. When the system comes up again, the GammaLink Fax option is installed.

19 Proceed to the next section, "Activating the GammaLink Fax option."

Activating the GammaLink Fax option

After the GammaLink Fax option components (hardware and software) are installed, activate the option using the `gamma` selection in the SCI `/sci/setup/options` menu. Follow these steps.

1 From the `/sci/setup/options>` menu, type ***gamma*** and press <Enter> to continue.

The system displays the following message:

```
Please Enter the fax board number to edit =
```

2 Type **1** and press <Enter>.

The system displays the following message:

```
Current Fax Does Not Exist - Add it? = cancel
add         - Add a new entry.
cancel      - Do not add the new entry.
        Fax Does Not Exist - Add it? =
```

3 Type **add** and press <Enter> to continue.

The system displays the following message:

```
Current Fax Board Type = cp-6/sc
cp-4/sc     - GAMMAFAX CP-4/SC
cp-6/sc     - GAMMAFAX CP-6/SC
cp-12/sc    - GAMMAFAX CP-12/SC
        Fax Board Type =
```

4 Select one of the following and press <Enter>.

- CP-4/SC board, type **cp-4/sc**
- CP-6/SC board, type **cp-6/sc**
- CP-12/SC board, type **cp-12/sc**

The system displays the following message:

```
Current Type of data encoding to use? = mu-law
mu-law - Default data encoding used in the US.
a-law - Default data encoding used in Europe.
        Type of data encoding to use? =
```

5 If your system is using loopstart or T1, type **mu-law**. If your system is using E1, type **a-law**. Press <Enter> to continue.

The system displays the following message:

```
Current I/O Switch (SW-1) Setting: = 0
0 - @ 0x358 (physical channels 0-5)
1 - @ 0x158 (physical channels 6-11)
2 - @ 0x168 (physical channels 12-17)
3 - @ 0x140 (physical channels 18-23)
4 - @ 0x148 (physical channels 24-29)
5 - @ 0x2B0 (physical channels 30-35)
6 - @ 0x2B8 (physical channels 36-41)
7 - @ 0x2C0 (physical channels 42-47)
8 - @ 0x2C8 (physical channels 48-53)
9 - @ 0x2D0 (physical channels 44-59)
I/O Switch (SW-1) Setting: =
```

6 Type in the appropriate switch setting to correspond with the SW-1 switch setting on the GammaFax board (see Appendix A, “Fax card configurations", for board configuration information). Press <Enter> to continue.

If a conflict with another card occurs, change the setting(s) on the card.

The system displays the `/sci/setup/options>` prompt when setup is complete. You may view the new GammaLink Fax activation by typing **hw** at the `sci/setup>` prompt.

7 At `sci/setup>` type **done** and press <Enter>.

8 Proceed to the next section, “Configuring the GammaLink Fax option.”

Configuring the GammaLink Fax option

To configure the GammaLink Fax option, follow these steps.

Note: The following procedure assigns a configuration setting to two ports.

1 From the `/sci/config>` menu, type **`fax`** and press <Enter> to continue.

The system displays the following message:

```
Please Enter the fax board number to edit =
enable       - Enable this fax board for use.
disable      - Disable this fax board from use.
edit         - Modify parameters for this fax
board.
list        - List parameters for this fax board.
done         - Return to the previous menu.
/sci/config/fax>
```

2 Type **edit** and press <Enter> to continue.

The system displays the following message:

FAX PORT 1

```
Current Port Status = enabled
enabled     - The unit will be used
disabled    - The unit will not be used
Port Status =
```

3 Type **enabled** and press <Enter> to continue.

The system displays the following message:

```
Current Receive Resolution = standard
standard    - 100 dots per inch
fine        - 200 dots per inch
Receive Resolution =
```

4 Respond appropriately to the prompt and press <Enter> to continue.

The system displays the following message:

```
Current Receive Imagewidth = a4
a4          - A4 width format
a4andb4     - A4 and B4 width format
any         - Any width
Receive Imagewidth =
```

5 Respond appropriately to the prompt and press <Enter> to continue.

The system displays the following message:

```
Current Receive Imagelength = unlimited
a4          - A4 length format
a4andb4     - A4 and B4 length format
unlimited   - Unlimited length
Receive Imagelength =
```

6 Respond appropriately to the prompt and press <Enter> to continue.

The system displays the following message:

```
FAX PORT 2
Current Port Status = enabled
enabled     - The unit will be used
disabled    - The unit will not be used
Port Status =
```

7 Type enabled and press <Enter> to continue.

The system displays the following message:

```
Current Receive Resolution = standard
standard    - 100 dots per inch
fine        - 200 dots per inch
Receive Resolution =
```

8 Respond appropriately to the prompt and press <Enter> to continue.

The system displays the following message:

```
Current Receive Imagewidth = a4
a4          - A4 width format
a4andb4     - A4 and B4 width format
any         - Any width
Receive Imagewidth =
```

9 Respond appropriately to the prompt and press <Enter> to continue.

The system displays the following message:

```
Current Receive Imagelength = unlimited
a4          - A4 length format
a4andb4     - A4 and B4 length format
unlimited   - Unlimited length
Receive Imagelength =
```

10 Respond appropriately to the prompt and press <Enter> to continue.

When the system displays the `/sci/config>` menu, type **done** and press <Enter> to continue.

Restarting the system

You must restart the MRS for your new installation to take effect. Allow the system to boot up normally. It will take several minutes.

GammaLink Fax configuration is complete.

Chapter 6: Receiving faxes with RFAX

The RFAX cell enables you to create applications that receive faxes. A VSN is assigned to the received fax and stored in a mailbox or database. As the owner of the mailbox or database, you can retrieve the stored fax and send it to a local fax machine, or you can design an application that schedules delivery of one or more stored faxes to a specific distribution list. Figure 6-1 shows a typical application for receiving faxes.

How faxes are received

In general, applications for receiving faxes follow these steps:

1 From a fax machine, the caller dials a number and connects to the MRS system where the fax option is installed.

2 The application answers the call and branches to an RFAX cell.

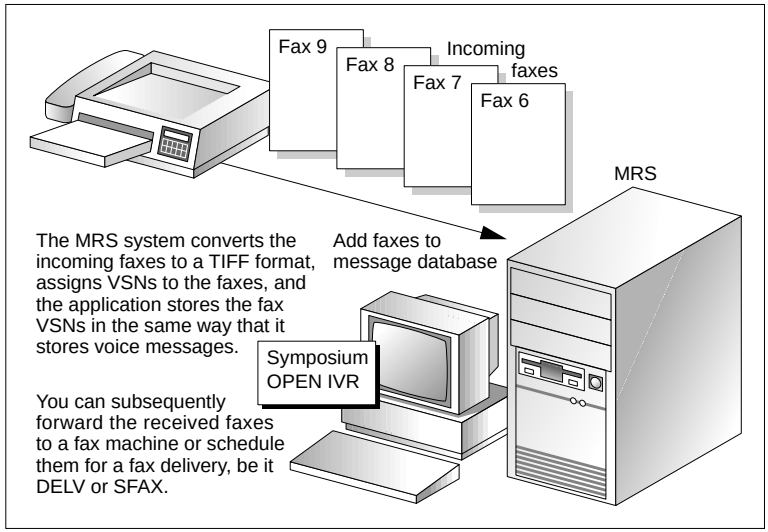
3 The RFAX cell obtains the necessary fax resources on the fax option card to receive the fax.

4 If the MRS system receives the fax successfully, the following events occur:

- Symposium OPEN IVR assigns a VSN to the incoming fax and stores the VSN in the buffer CURRENT MESSAGE after the transmission is complete.
- The application transfers the fax VSN to storage and hangs up. A cleanup handler can log the results.

5 If the MRS system fails to receive the fax successfully, it logs error messages and the application hangs up.

Figure 6-1: Sample receive fax (Fax Mail) application


Fax 9
Fax 8
Fax 7
Fax 6
Incoming faxes
MRS
The MRS system converts the incoming faxes to a TIFF format, assigns VSNs to the faxes, and the application stores the fax VSNs in the same way that it stores voice messages.
Add faxes to message database
Symposium OPEN IVR
You can subsequently forward the received faxes to a fax machine or schedule them for a fax delivery, be it DELV or SFAX.

General setup procedure for receiving faxes

Before creating an application for receiving faxes, review and follow the preliminary steps described in Chapter 1, “Introduction”. Also, note the following guidelines:

- When creating an application to receive faxes, you must include an AMSG, QINS, or QUPD cell immediately after the RFAX cell.
  - If you use a messaging database, include an AMSG cell immediately following the RFAX cell.
  - If you use an SQL database, include a QINS or QUPD cell immediately following the RFAX cell.

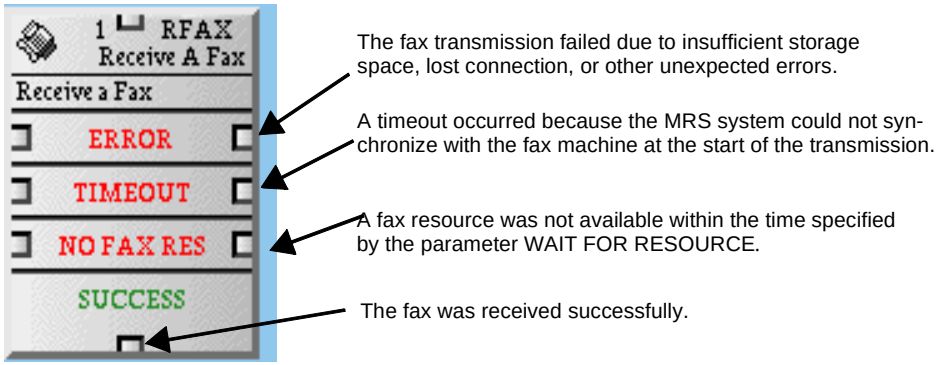
  These cells store the received fax VSN for future use.
- If you are creating an application to deliver the received faxes, include a DELV cell immediately following the RFAX cell.

- The RFAX cell sets the CELL STATUS buffer to 0 if the fax transfer is successful and to 1 if the fax transfer fails. When the sending fax hangs up, the application can call up a cleanup handler, which can then check the CELL STATUS buffer to determine whether the transfer was successful or unsuccessful.
- If appropriate, develop your application to play prompts to keep the caller informed of the status of the call.

Specifying the RFAX cell branches

Figure 6-2 shows the branches from an RFAX cell. A description of each branch is contained beside the figure.

Figure 6-2: RFAX cell branches

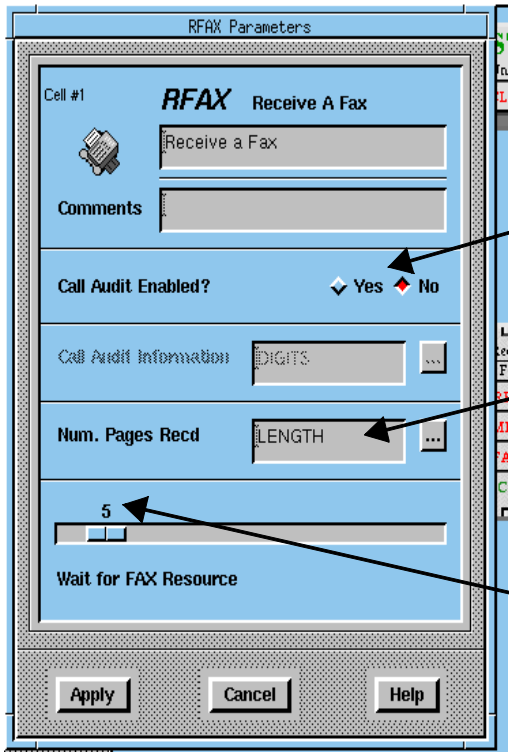

1 RFAX
Receive A Fax
Receive a Fax
ERROR
TIMEOUT
NO FAX RES
SUCCESS
The fax transmission failed due to insufficient storage space, lost connection, or other unexpected errors.
A timeout occurred because the MRS system could not synchronize with the fax machine at the start of the transmission.
A fax resource was not available within the time specified by the parameter WAIT FOR RESOURCE.
The fax was received successfully.

To display the RFAX cell parameter page, double-click with mouse button 1 on the cell face.

Specifying the RFAX cell parameters

Figure 6-3 illustrates the parameters contained within an RFAX cell.

Figure 6-3: RFAX Parameters page



Lets you enable/disable a statistics feature in Symposium OPEN IVR software that keeps track of how many times this cell is encountered.

The LENGTH buffer contains the number of fax pages received.

The number of seconds to wait for a fax resource if none is immediately available. The “No Fax Resource” branch is taken if a resource does not become available in the specified time.

Example of an application to receive a fax

The application example shown in Figure 6-4 creates one mailbox used to store a received fax VSN. The purpose of each cell is described in the figure. This example is continued in Chapter 7, “Sending faxes with SFAX”, where the received fax VSN is retrieved from the mailbox and sent to a destination fax machine.

For simplicity, this sample application creates a single mailbox. A typical application, however, would create several mailboxes and store several fax messages. Refer to the *Symposium OPEN IVR Application Development Guide* for information on creating mailboxes and sending or retrieving messages from a messaging database.

Figure 6-4: Example of an application to receive faxes

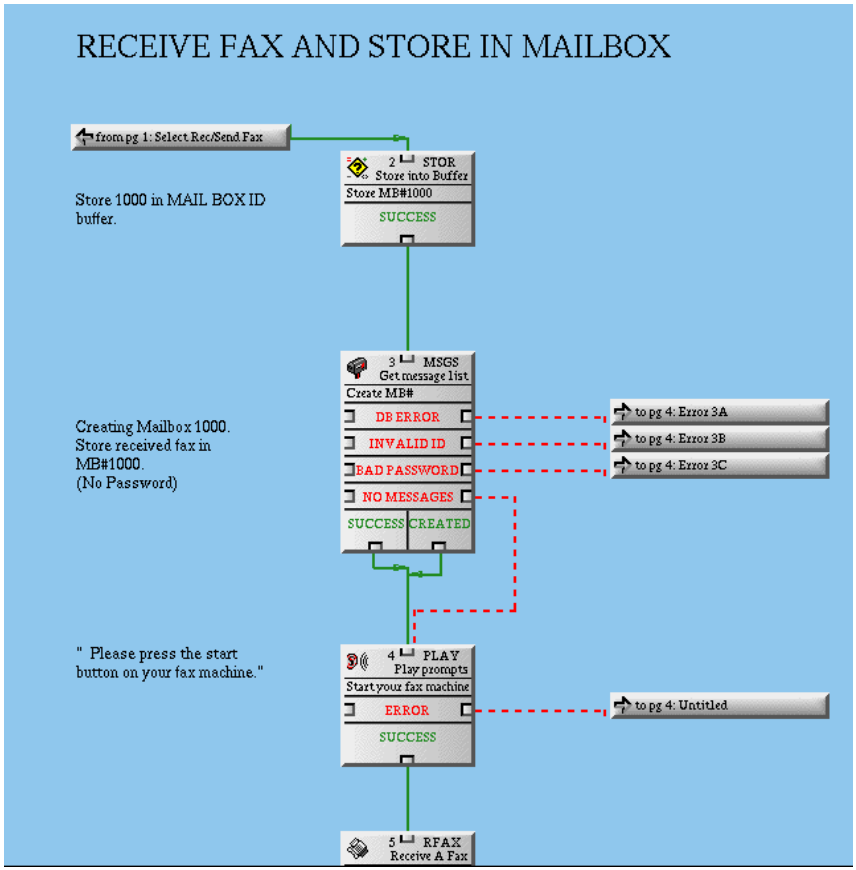
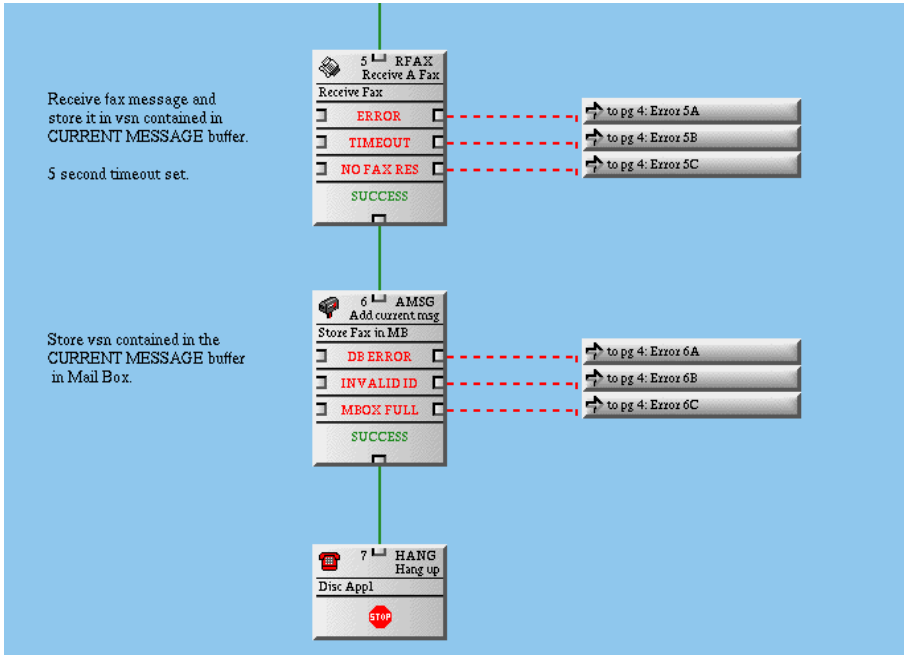


Figure 6-5: Example of an application to receive faxes (continued)



Chapter 7: Sending faxes with SFAX

The SFAX cell allows you to create applications that provide a variety of outbound fax services, such as fax delivery, fax on demand, and fax broadcasts. Each application can contain one SFAX cell, which can send one fax. That fax, however, can consist of multiple documents sent in sequence on the same call.

In general, applications for sending faxes follow these steps:

1 The scheduled application finds an available outbound channel and then dials the number of the destination fax machine.

2 Upon successfully completing the call, the application branches to the SFAX cell, which obtains the necessary fax resources on the fax option board for the duration of the outbound fax.

3 The SFAX cell sends the fax.

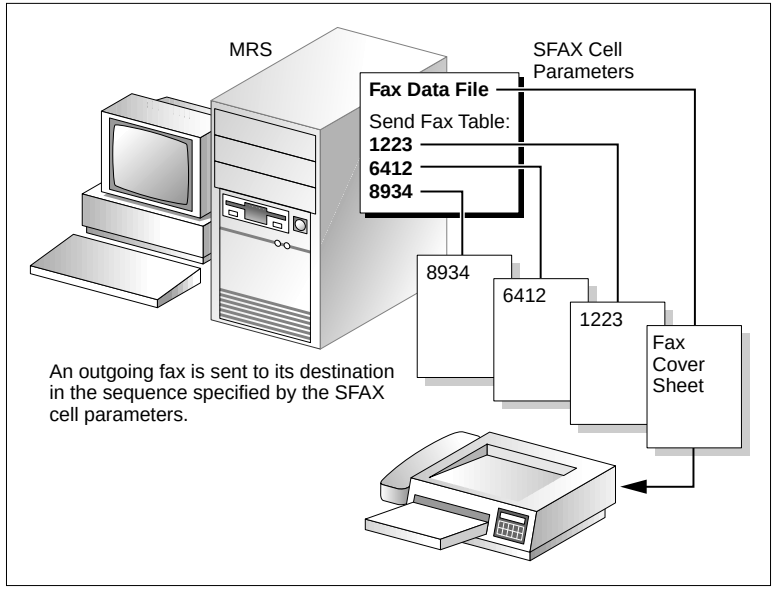
4 When the destination fax machine receives the fax, the fax machine hangs up.

5 If the outbound fax transmission is successful, the application hangs up and a cleanup handler can log the results.

6 If the outbound fax transmission is not successful, a cleanup handler can use a DELV cell to reschedule delivery of the fax. If the fax cannot be delivered after a user-specified number of attempts, the application is terminated and the results are logged.

Figure 7-1 shows an example of an SFAX cell that specifies a cover page followed by three TIFF files identified by VSNs 1223, 6412, and 8934. The cover page is defined by the Fax Data File, and the TIFF files are stored as fax VSNs. The fax option assembles the entire package and sends it to the designated fax machine.

Figure 7-1: Sending a cover page and stored fax files



General setup procedure for sending faxes

The procedure for creating an application to send a fax varies depending on your particular application. In general, however, you need to consider the following items:

- Will the fax contain a cover page?
- If the fax contains a cover page, will the contents be dynamic (information that changes for each fax, such as the caller's phone number, number of pages, and document titles), or will the contents be static (information that remains constant for all faxes, such as a form letter)?
- What type of file will be faxed: ASCII, TIFF, stored fax messages, or some combination of these types?

If you send a cover page, it typically contains a combination of ASCII text and fax objects, such as logos, signatures, and forms. Make sure the fax objects are loaded into the MRS system, and make sure you create a Fax Data File that defines the contents and layout of the cover page. These procedures are described later in this chapter.

If you send a dynamic cover page, you can create the Fax Data File through a User function. (Refer to the *Symposium OPEN IVR Application Development Guide* for information on User functions). If you send a static cover page, you can simply use a text editor to create the Fax Data File.

The procedure for faxing ASCII files, TIFF files, or stored fax messages varies depending on the file type. The procedures for loading these file types are also described later in this chapter.

Steps in sending a fax

Following is a summary of the steps involved in sending a fax with a detailed description of each step.

1 If you are sending an optional fax cover page, follow these steps:

a Scan the fax objects.

If the fax objects required for the cover page are not already stored in the MRS system, scan those objects and save them as TIFF/F formatted files.

b Load any newly scanned fax objects into the MRS system.

c Create the Fax Data file.

Create this file to define the cover page contents and layout.

2 If you are sending ASCII files: Concatenate the ASCII files you are faxing with the Fax Data File to create a single ASCII file.

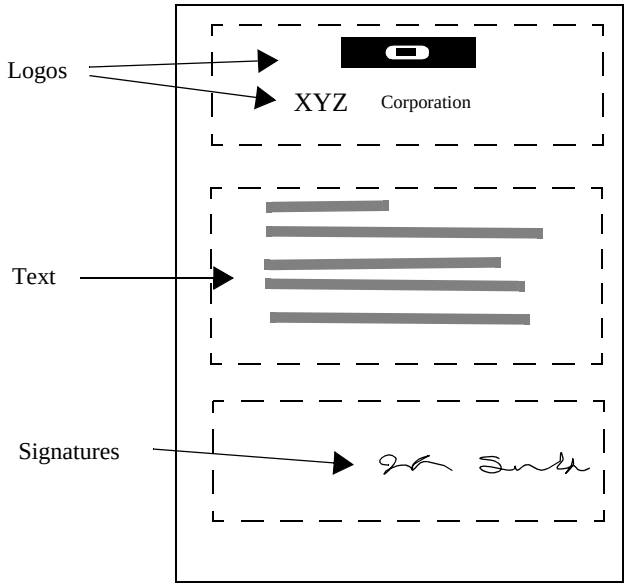
3 If you are sending TIFF files or fax messages: Load into the MRS system all the TIFF files you are faxing. You can send up to 30 fax VSNs at one time by loading them as fax VSNs and specifying the VSNs in the Send Fax Table of the SFAX cell.

Creating an optional cover page

You create a cover page by interspersing fax images, such as logos and signatures, with ASCII text, as shown in the example in Figure 7-2. This functionality is called striping and is achieved by combining special fax interface language commands (which are described in Chapter 8, "Command Language Interface for Fax") and text in the Fax Data File.

> ***Note:*** MRS software Release 4.0 also includes an overlay feature that allows you to superimpose text over an image. This feature is useful, for example, in filling out a form.

Figure 7-2: Sample cover page with fax striping technique



Before running the application, make sure the fax objects that you use in the cover page are stored in the MRS. To determine which fax objects are already stored in the MRS system, use the `/sci/files/fax/map` option in the Service Console Interface. Refer to the *Symposium OPEN IVR Service Console Interface Reference Manual* for details.

If the fax objects are not currently stored in the MRS system, refer to the following two sections to scan the objects and to load the resulting TIFF/F files into the MRS system.

Scanning fax objects to generate TIFF/F files

Scanning is performed on user-supplied equipment. Specific procedures, therefore, depend on the equipment you are using. TIFF files can be created using any commercially available drawing or paint program that can save graphical images in TIFF format.

Store each scanned object file on a UNIX tar formatted disk or on a DOS formatted disk (3.5-inch, high-density). Use descriptive file names that will allow you to easily identify the contents of each file.

The Symposium OPEN IVR system supports the following TIFF/F formats:

- uncompressed
- packed bits
- group 3, 1-dimensional

Fax formats used by the MRS system have the following characteristics:

- black and white (no color or gray scale)
- fixed size (2112 X 1728 pixels)

  Note: If the fax object is not scanned to this fixed size, MRS software automatically readjusts it to this size, providing that it is loaded as a fax VSN (as described in the next section).

Loading fax objects into the MRS system

To load the scanned fax objects into the MRS system, use the `/sci/files/fax` option from the SCI. The `/sci/files/fax` option allows you to load fax objects from a 3.5-inch, high-density disk that is formatted either with the UNIX `tar` command or formatted for DOS.

Using the options available in `/sci/files/fax`, you can assign fax objects, view those objects which are assigned to each fax set, view also those which are still unassigned, delete fax objects, and back up your fax sets to a disk.

To load a fax object, follow these steps.

1 Access the `/sci/files/fax` option. Refer to the *Symposium OPEN IVR Service Console Interface Reference Manual* for information on how to use the SCI.

The following submenu of options is displayed:

`load`	`Load more fax objects from a UNIX tar disk.`
`dosload`	`Load more fax objects from a DOS disk.`
`view`	`List fax objects not yet assigned.`
`map`	`List fax objects in a fax set.`
`form`	`Assign a fax object to a Form number.`
`sign`	`Assign a fax object to a Signature number.`
`logo`	`Assign a fax object as a Logo.`
`listdef`	`List defined default files.`
`edit def`	`Edit a default file.`
`delete`	`Delete a fax object from a fax set.`
`backup`	`Back up from a Fax directory.`
`done`	`Return to the previous menu.`

2 If you load files from a UNIX tar formatted disk, select `/sci/files/fax>` **`load.`**

If you load files from a DOS formatted disk, select `/sci/files/fax>` **`dosload.`**

The following message is displayed (for dosload):

```
Type q to quit or press ENTER to continue:
```

3 After you press <Enter>, the system displays a list of the files that are retrieved. For example:

```
Retrieving CVBOTTOM.FTF
Retrieving CVTOP.FTF
Retrieving PAGE01.FTF
Retrieving PAGE02.FTF
Retrieving PAGE03.FTF
```

Note: UNIX **tar** floppy disks may generate system error messages declaring that the loading of the objects has failed. Ignore these for the moment, and use the **view** command in the next step to verify your loading.

4 To view a list of unassigned fax objects, select `/sci/files/fax>` **`view.`**

A list similar to the following is displayed:

```
CVBOTTOM.FTF PAGE02.FTF CVTOP.FTF PAGE01.FTF
```

Note: It is recommended that you assign all fax objects as logos. This allows you to assign a representative name to the object and simplifies identifying that object in the future.

5 To assign any fax object as a logo, select `/sci/files/fax>` **`logo`**.

You are prompted for the file name and then for the name of the fax object, as follows:

```
Default Fax set to assign to = 1
Fax set to assign to =
Enter the file to assign: CVTOP.FTF
```

```
Enter the logo name to use: Nortel.logo
```

When you finish loading fax objects, select `/sci/files/fax> done`.

Note: Any fax objects that are not assigned to a VSN when you exit the `/sci/files/fax` option are automatically deleted.

Creating the Fax Data File (cover page)

Note: If you are not sending a cover page, you do not need to create a Fax Data File.

If you are sending a cover page, you must create a Fax Data File to define the cover page contents and layout.

Defining the Fax Data File

The Fax Data File must be defined as follows:

- It must have a file name that ends with `.fax`.
- It must reside in the `/u/nortel/fax.d` directory.
- The file name must be loaded into the FAX DATA buffer in the SFAX cell. The extension (`.fax`) is assumed by the system and must not be entered—it will be appended by the system.

When the application is run, the fax option converts the ASCII Fax Data File to a fax-ready format and sends the file to the destination fax machine.

Figure 7-3: General structure of a Fax Data File

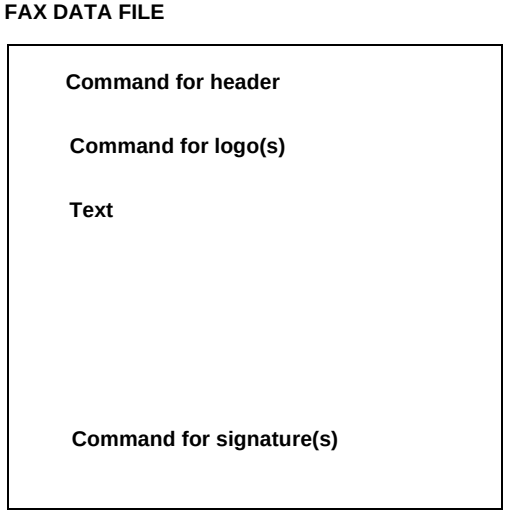


Figure 7-3 shows the general structure of a Fax Data File for the sample cover page shown in Figure 7-2. The fax interface commands available for creating the cover page are described in detail in Chapter 8, “Command Language Interface for Fax”.

Supported functions

Using the fax interface commands, you can perform the following general functions:

- Control document parameters: resolution and width.
- Specify page layout: margins and length.
- Specify header and footer information.
- Specify the layout of ASCII text: width, margins, spacing, fonts.
- Merge a TIFF file (image) with ASCII text. This command followed by text causes the specified image to be followed by the text on the cover page. The command is used for logos and signatures.

Overlay a TIFF file (image) with ASCII. This command followed by text causes the text to be superimposed over the image. The command is used for forms.

Faxing ASCII files

The process for faxing ASCII files is much like the following:

- A host computer downloads customer-specific data in ASCII format to the Application Server, in response to a caller's request. For example, the data could be a current bank statement that needs to be faxed to the caller.
- The application running on the inbound channel receives the data, assigns it a unique file name for each channel, and saves it.
- The data is then concatenated onto the cover page, resulting in a single ASCII file. That ASCII file requires a unique file name with a `.fax` extension, and must be stored in the `fax.d` directory.

Faxing TIFF/F files

Make sure that all TIFF/F files are scanned and loaded into the MRS as fax VSNs before you run the application. To scan the files, use the same general procedure outlined in "Scanning fax objects to generate TIFF/F files" on page 7-5. Then load the TIFF/F files as described in "Loading TIFF/F files into the MRS system as FAX VSNs" below.

Immediately after sending the optional cover page defined in the Fax Data File, the SFAX cell sends all the fax VSNs that are listed in the Send Fax Table, which is specified on the SFAX cell parameter page. You can specify from 0 to 30 VSNs in the Send Fax Table.

Depending on your application, you may choose to create either a single TIFF/F file or multiple TIFF/F files. For example, if you fax a document that contains multiple pages, you may want to create one TIFF/F file for each document page to simplify the process of adding or deleting pages from the document.

Loading TIFF/F files into the MRS system as FAX VSNs

To load scanned TIFF/F files into the MRS system, use the `/sci/files/vsn/install` option from the SCI. The `/sci/files/vsn/install` option allows you to load VSN objects from a disk, modify existing VSN headers, and create new headers. To load a TIFF/F file, follow these steps.

1 Access the `/sci/files/vsn/install` option. Refer to the *Symposium OPEN IVR Service Console Interface Reference Manual* for information on how to use the SCI interface.

The following submenu of options is displayed:

`load`	`Load VSN objects from a UNIX tar disk`
`dosload`	`Load VSN objects from a DOS disk`
`view`	`List VSN objects not yet assigned`
`assign`	`Assign VSN objects to VSNs`
`done`	`Return to the previous menu.`

2 If you load files from a UNIX tar formatted disk, select

```
/sci/files/vsn/install> load
```

If you load files from a DOS formatted diskette, select

```
/sci/files/vsn/install> dosload
```

The following message is displayed:

```
Type q to quit or press ENTER to continue:
```

3 Press <Enter> to display the files being retrieved.

4 To view a list of VSN objects that are loaded on the MRS system but not assigned to a specific VSN, select:

```
/sci/files/vsn/install>  view
```

5 To assign a TIFF/F file to a VSN, select:

```
/sci/files/vsn/install> assign
```

Note: You must assign each fax object as a VSN. Otherwise, fax objects that are not assigned to a VSN are automatically deleted when you exit the option /sci/files/vsn/install.

The system prompts you to enter the file name:

```
Enter the file to assign:
```

6 Enter the file name of the scanned TIFF file, for example, **SHEET01.FTF**.

If the VSN object in that file already contains a VSN header, you can either change the header or leave it as is. If the VSN object does not contain a header, you are prompted to enter the header type you wish to assign:

```
   What is the type of the VSN to add the header
to:
   Choose the current VSN type: =1
1 -  ADPCM (Voice file)
2 -  FAX
3 -  ASCII (text file)
4 -  A-law (European PCM voice file)
5 -  Mu-law (North American voice PCM file)
6 -  ADSI
7 -  EPSON
8 -  BFT
```

For example, to assign a TIFF/F file as a fax VSN, choose option 2 (FAX).

The system prompts you to enter a comment string:

```
Type a comment string up to 160 characters:
```

7 Enter a descriptive comment string to help you easily identify this fax VSN in the future.

8 Assign a VSN number.

The system prompts you as follows:

```
Default VSN to copy filename to = 0
```

```
        VSN to copy filename to =
Enter the VSN number to assign: 2050
```

If the VSN number you enter is already assigned, the system asks if you want to overwrite the existing VSN number, select a new number, or quit:

```
Enter y to overwrite, s to select a new VSN
number, and q to quit.
```

9 After loading the fax VSNs, select `/sci/files/vsn/install>` **done.**

Creating the send fax application

Before you create an application to send faxes, review the preliminary steps described in Chapter 1, “Introduction”, and follow them as appropriate for your application. Also, keep the these guidelines in mind:

- When an SFAX cell is encountered in the call flow, SFAX assumes that a call has already been successfully initiated to a fax machine. This is normally accomplished by using an outdial cell such as DOUT. However, if the caller is already at a fax machine, it may not be necessary to do an outdial. Instead, before processing the SFAX cell in the call flow, you can inform the caller to place the fax into receive mode.
- The SFAX cell performs the following operations:
  - copies the ASCII file to the MRS
  - converts the ASCII file to TIFF/F format
  - sends the ASCII file to the fax machine
  - sends whatever files are specified in the Send Fax Table

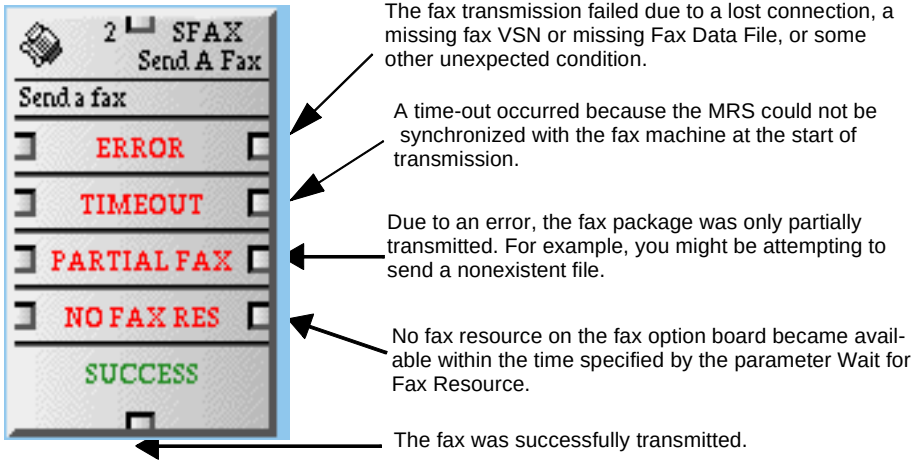
  If a hang-up occurs during either of these first two operations, the SFAX cell may not branch to another cell but may go directly to the cleanup handler. Therefore, when you use the SFAX cell in a call flow, it is recommended that you set up the cleanup handler to handle successful or failed fax transfers.
- If you fax a lengthy ASCII file, be aware that a time-out condition could occur before the SFAX cell completes its operations.

Note: Ensure that the target fax machine is on the `Auto` setting, especially for scheduled delivery to an unattended fax machine.

Specifying the SFAX cell branches

Figure 7-4 shows the branches in an SFAX cell.

Figure 7-4: SFAX cell branches

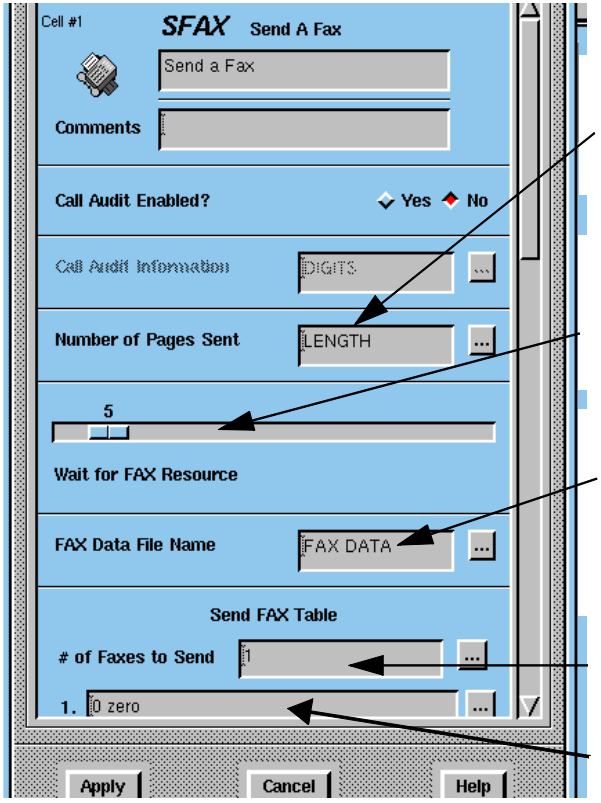

2 SFAX
Send A Fax
Send a fax
ERROR
TIMEOUT
PARTIAL FAX
NO FAX RES
SUCCESS
The fax transmission failed due to a lost connection, a missing fax VSN or missing Fax Data File, or some other unexpected condition.
A time-out occurred because the MRS could not be synchronized with the fax machine at the start of transmission.
Due to an error, the fax package was only partially transmitted. For example, you might be attempting to send a nonexistent file.
No fax resource on the fax option board became available within the time specified by the parameter Wait for Fax Resource.
The fax was successfully transmitted.

To display the SFAX cell parameter page, double-click with mouse button 1 on the cell face.

Specifying the SFAX cell parameters

Figure 7-5 shows the SFAX cell parameter page and defines the SFAX cell parameters. For information on how to include a cell in your call flow and how to define the parameters for the cell, refer to the *Symposium OPEN IVR Application Development Guide* and the *Cell Catalog*.

Figure 7-5: SFAX cell parameters



The LENGTH buffer contains the number of pages that were sent. If this buffer does not specify all the pages in the document, the "Partial Fax" branch is taken.

The number of seconds to wait for a fax resource on the Fax Option board if none is immediately available. If no resource becomes available in the specified time, the "No Fax Resource" branch is taken.

The FAX DATA buffer contains the name of the Fax Data File. The Fax Data File must reside in the **fax.d** directory in the base directory of the Symposium OPEN IVR system. You must enclose the name in quotes.

If you are not sending a cover page, enter a double quote (").

The number of fax VSNs to send to the caller (up to a maximum of 30).

Fax VSNs, in sequence, that will be sent. Up to 30 fax VSNs can be sent for each SFAX cell.

Example of an application to send a fax

The sample application shown in Figure 7-6 for sending a fax is a continuation of the sample application for receiving a fax described in Chapter 6, "Receiving faxes with RFAX". The received fax that was stored in a mailbox is retrieved and sent, along with a cover page, to a fax machine.

Figure 7-6: Part 1 of a sample application to send faxes

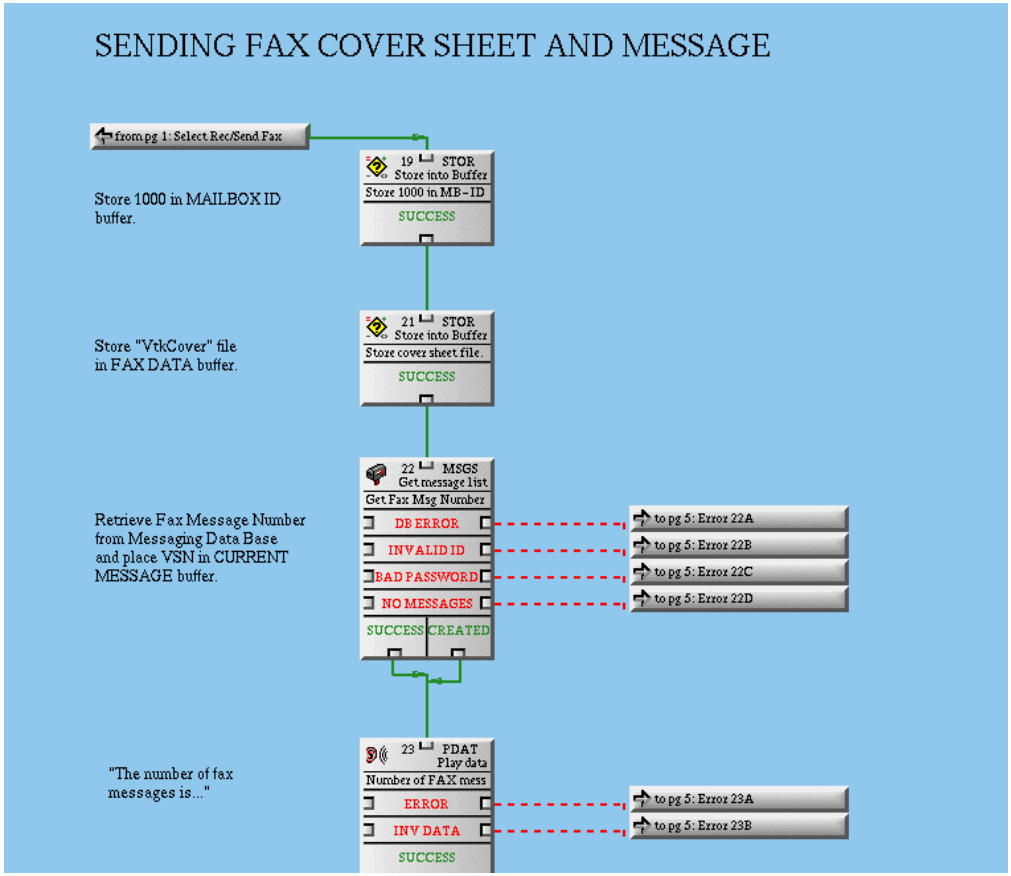

SENDING FAX COVER SHEET AND MESSAGE
from pg 1: Select Rec/Send Fax
Store 1000 in MAILBOX ID buffer.
19 STOR Store into Buffer
Store 1000 in MB-ID
SUCCESS
Store "VtkCover" file in FAX DATA buffer.
21 STOR Store into Buffer
Store cover sheet file.
SUCCESS
Retrieve Fax Message Number from Messaging Data Base and place VSN in CURRENT MESSAGE buffer.
22 MSGS Get message list
Get Fax Msg Number
DB ERROR
INVALID ID
BAD PASSWORD
NO MESSAGES
SUCCESS
CREATED
to pg 5: Error 22A
to pg 5: Error 22B
to pg 5: Error 22C
to pg 5: Error 22D
"The number of fax messages is..."
23 PDAT Play data
Number of FAX mess
ERROR
INV DATA
SUCCESS
to pg 5: Error 23A
to pg 5: Error 23B

Figure 7-7: Part 2 of a sample application to send faxes

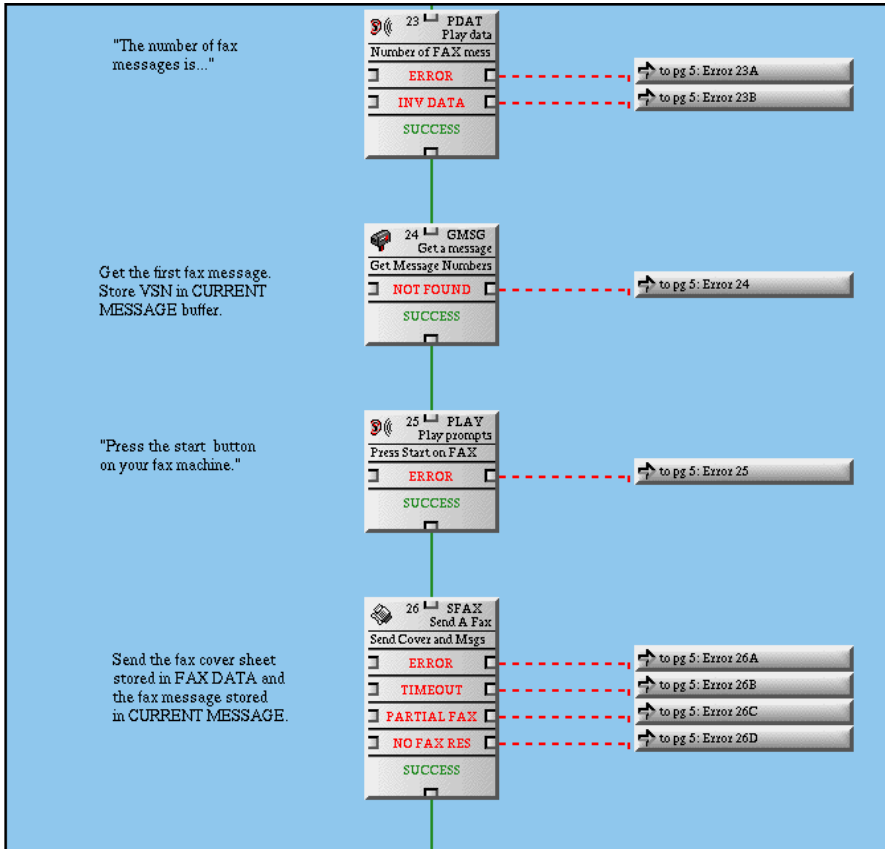


Figure 7-8: Part 3 of a sample application to send faxes

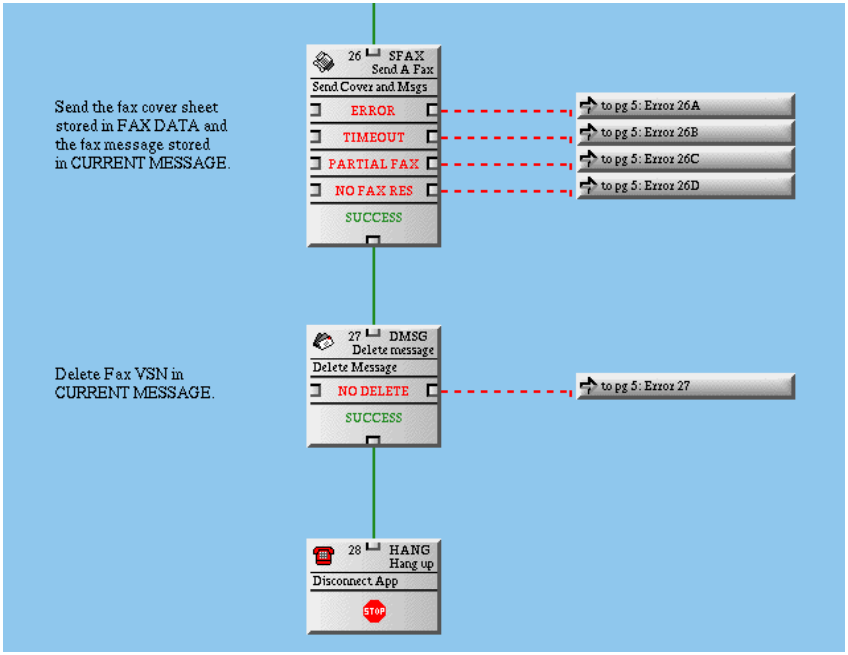
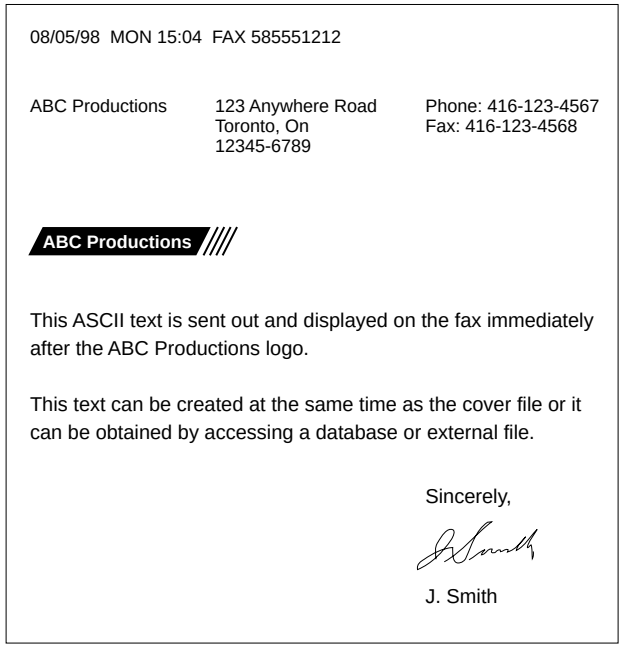


Figure 7-9 illustrates the cover page used in the Send Fax example.

Figure 7-9: Cover page used in the send fax example


08/05/98 MON 15:04 FAX 585551212
ABC Productions
123 Anywhere Road
Toronto, On
12345-6789
Phone: 416-123-4567
Fax: 416-123-4568
ABC Productions
This ASCII text is sent out and displayed on the fax immediately after the ABC Productions logo.
This text can be created at the same time as the cover file or it can be obtained by accessing a database or external file.
Sincerely,
J. Smith

Chapter 8: Command Language Interface for Fax

This chapter describes fax striping and fax overlays. These features use the Command Language Interface for Fax (CLIFF) developed by Nortel, which allows you to merge or superimpose images with ASCII text on a fax cover page. It also provides better parameter control for the fax transmission.

Fax striping using infopackets

You can include fax images such as logos and signatures with ASCII text on a fax cover page. This feature is called striping. To achieve this, you intersperse special commands with text on the Fax Data file to designate the placement of images and text and control some of the aspects of text layout as well.

When the cover page is converted from ASCII text to a transmittable form (TIFF Class F format), the MRS software strips out the commands and translates them into appropriate infopackets, which allow the interlacing of ASCII text and images (such as logos, signatures or other graphics) on the fax cover page. The user interface that allows you to do this is called Command Language Interface for Fax (CLIFF). CLIFF also provides full control of the page and text layout. In addition, you can enter commands to transmit headers and/or footers on all pages of the fax with specific user-controlled information.

Before you use CLIFF, preload any fax images (in black and white, only) that you want to use on the cover page onto the MRS system from a floppy through the menu `/sci/files/fax` menu using **load** and **dosload** commands. The directory `/sci/files/fax` allows up to 256 different directories for storing fax TIFF files, thereby facilitating the support of multiple applications and customers.

Once you load the files, you assign them as logos or signatures from the same SCI menu in order to permanently store them on the system. Files that are not assigned are removed from the system as soon as you leave the fax menu.

Creating fax overlays

Whereas fax striping allows you to intersperse fax images with ASCII text on a fax cover page, a fax overlay allows you to superimpose a TIFF file on the ASCII fax data file.

> ***Note:*** In Release 4.0 fax overlays are only supported by the GammaLink fax card.

The GammaLink Fax option allows you to create an overlay, enabling you to superimpose the contents of your ASCII fax data file onto the overlay. The overlay can be any TIFF file that you load on the MRS.

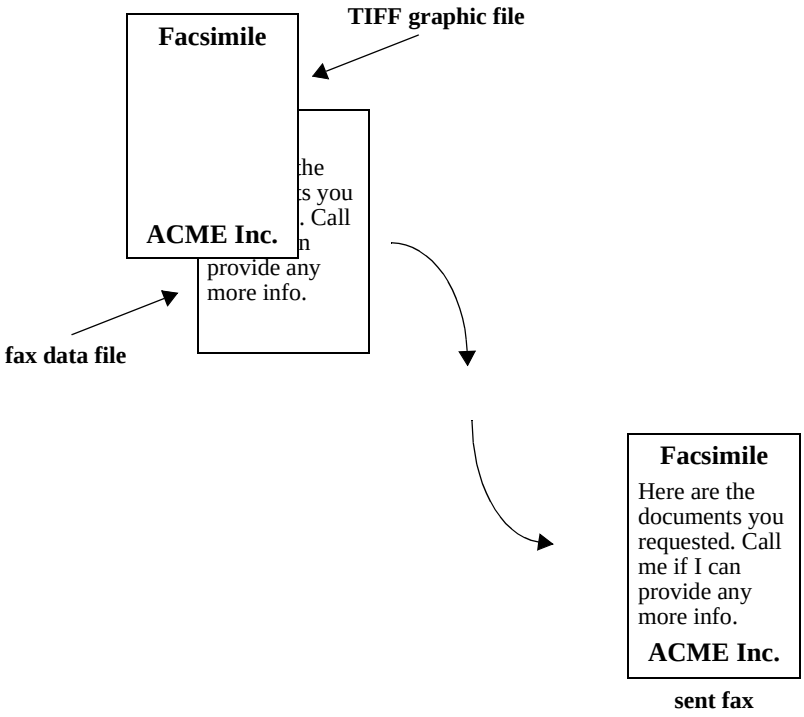
For example, if you want to use a standard form as the cover sheet to your faxes, you could create the form as a TIFF graphic file, load it on the MRS, and then reference the file as an overlay in the fax data file. When you send a fax, GammaLink Fax superimposes the contents of the fax data file onto your form. See Figure 8-1.

CLIFF command limitations

Be aware of the following limitations with CLIFF commands in the GammaLink Fax Option Overlay feature:

- You cannot specify multiple $OVERLAY commands within a single fax file.
- An overlay appears on the first page (cover page) of the document only.

Figure 8-1: Example of fax overlay



Preparing a fax overlay

Typically, the TIFF file to be used as an overlay is a bitmap graphic file created using an illustration or paint program. Most graphics can be converted to the TIFF format using various graphic conversion programs.

Once you create the TIFF files you want to use as overlays, you load them onto the MRS from a floppy disk by using the `load` or `dosload` option and then assign them to a fax set by using the `assign` option. You can access these options from the `/sci/files/fax` menu.

Also see Chapter 7, "Sending faxes with SFAX", for further information about preparing and sending faxes with embedded CLIFF commands.

Using CLIFF commands

The following CLIFF commands allow you to control page layout by manipulating images with text on a fax cover page:

- $ DOC_CNTRL
- $ PAGE_CNTRL
- $ HEADER
- $ TEXT
- $ IMAGE
- $ OVERLAY

At this point, become familiar with some of the rules that you follow when using CLIFF. Each command begins and ends with a special character ($), which must be the first character on the line in column 1. Otherwise, MRS software interprets that command as ASCII text and transmits it with the cover page text.

Each command uses a set of parameters that customizes the functionality of that command. You can also abbreviate parameters within a given command to the shortest unique representation for each parameter down to a single character. For example, you can enter **`-top_margin`** as **`-top_m`** or **`-t`**.

Command syntax

The syntax for these commands is as follows:

`$ COMMAND -param1 <val> -param2 <val> -param3 <val> $`

When you enter a command, use spaces or tabs as parameter and value delimiters. If the value (<*val*>) of a parameter is missing or incorrect, CLIFF substitutes the default value for the missing or incorrect parameter and logs an error message in the event log file. If a parameter itself is incorrect, CLIFF ignores that parameter and displays an error message in the event log file.

Note: Include a minimum of one space or tab after the $ at the beginning of the command and before the $ at the end of the command. Extra spaces are ignored. All commands (but not parameters) must be in capital letters.

When you assign fax images, note the number of the fax set to which you assign them. When you wish to specify that fax image by means of the **$ IMAGE** command, use this set number to identify the path in the system.

TSP software translates all CLIFF commands into appropriate Brooktrout infopackets and removes the commands from the text.

$ DOC_CNTRL

The $ DOC_CNTRL command allows you to overwrite the current fax configuration settings on the MRS system for the current document only. This command controls the resolution and horizontal width parameters, and whether a cover page is included with the fax. The following syntax is required:

$ **DOC_CNTRL -cover_page** *<y/n>* **-resolution** *<val>* **-width** *<val>* $

where:

-cover_page *<y/n>*
: Specifies whether there is a cover page. The choices are y or n. The default is y.

Note: Setting this parameter to n allows you to specify a header or footer for a fax without a cover page.

-resolution *<val>*
: Defines the resolution of the document. The following values are allowed:

  0 Normal resolution (default)

  1 Fine resolution

-width *<val>*
: Indicates the horizontal width of the document in pixels. The acceptable values are as follows:

0 Represents the A4 format (215 mm, 1728 pixels, normal resolution) (default).

1 Represents the B4 format (255 mm, 2048 pixels, normal resolution).

2 Represents the A3 format (303 mm, 2432 pixels, normal resolution).

Note: GammaLink Fax does not support the `-resolution` command parameter.

You can also insert headers with or without footers on all pages of the fax transmission without transmitting a cover page. To do this, create a cover page of instructions that only contains the interface commands to specify that there is no cover page for this transmission.

Note: If you do not specify the `$ DOC_CNTRL` command, then it will be issued internally applying the default values. If you do use this command, it must be the first command in the file.

Example:

```
$ DOC_CNTRL -c y -r 0 -w 0 $
```

$ PAGE_CNTRL

The $ PAGE_CNTRL command specifies the page layout: that is, size of the top and bottom margins, the length of the page, and whether to pad pages with blank scan lines in order to bring a partially filled page up to a full page, as specified by the length parameter. This command also forces a page break.

The syntax for this command is:

$ PAGE_CNTRL -top_margin *<val>* -bot_margin *<val>* -length *<val>* -pad_flag *<val>* $

where:

-top_margin *<val>* Indicates the top margin, from 0 to 2.5 inches, in .1 inch increments. The default is .3 inch.

-bot_margin *<val>* Indicates the bottom margin, from 0 to 2.5 inches, in .1 inch increments. The default is .3 inch.

-length *<val>* Indicates page length in number of G3 lines per page for a normal resolution of 98 lines per inch. The range available is 0 to 65,535. The default is 1,143.

-pad_flag *<val>* Indicates if blank scan lines should be added in order to bring a partially filled page up to a full page, as specified by the length parameter. This is called padding. The acceptable values are:

- 0 Pads the page to its full length with blank lines (default).
- 1 Does not pad the page to its full length.

Note: Padding requires that the last stripe be ASCII text. Therefore, if you want to pad your cover page with blank lines and you concluded the page with an image (a signature, for example), then you must include a line of ASCII text as the last stripe, even if it is a blank line.

CAUTION
Risk of Data Loss

To avoid transmission errors, either place the $ PAGE_CNTRL command before the $ HEADER command or separate the two commands with text.

Example:

```
$ PAGE_CNTRL -t .5 -b .5 -l 1143 -p 0 $
```

$ HEADER

The $ HEADER command allows you to place a header or footer on all subsequent pages of the fax transmission.

The syntax for this command is:

```
$ HEADER -location <val> -mode <val> -string "<label>"
$
```

where:

-location *<val>* Specifies text placement, where:

- 0 Specifies a header (default).
- 1 Specifies a footer.

Note: You must first specify a header in order to specify a footer. You cannot place a footer without a header.

-mode *<val>* Indicates the insertion mode. Type 3.

- 3 Inserts a header before or after an image.

Note: Insert mode (3) is the only mode currently supported.

-string *"<label>"* Allows you to use a text string to specify the format of the header. You can use ASCII text and the following special format characters, which assume the special format value when they follow % in the text string:

- **a** Day of the week (3-character abbreviation; for example, Mon)
- **A** Day of the week (full length; for example, Monday)
- **d** Day of the month (01-31)
- **H** Hour (00 - 23)
- **I** Hour (00 - 12)
- **m** Month (01 - 12)

M Minute (00 - 59)

p AM/PM

P Page number (01 - 99)

S Seconds (00 - 59)

y Year (00 - 99)

% Special character, which indicates that any of the letters in this list that follow it assume their special formatting value, rather than that of ASCII characters.

The label is useful for entering the names of customers, ANI data, DNIS data, Fax IDs, page numbers, the date, the time, and so on. This would be done through a user function. If any spaces are included in the label, enclose the entire label in quotes.

Note: If the `$ HEADER` command is preceded by either a blank line or any ASCII text, the header appears on all subsequent pages, but not on the first page.

Example:

On Monday, 9/23/96, at 3:45 PM, if you enter the following command:

```
$ HEADER -l 0 -m 3 -s ”Today is %A %m-%d-%y %I:%M %p”
$
```

the following header will appear on all subsequent pages:

Today is Monday 09-23-96 3:45 PM

$ TEXT

The $ TEXT command allows you to specify the layout for a stripe of ASCII text. Any length of text stripe is allowed, from one line of text to the entire cover page (multiple pages of text), separated by CLIFF commands. With the $ TEXT command, you can set the width of your text stripe, the left or right margins and the spacing between lines of text. The syntax for this command follows:

$ TEXT -width *<val>* -left_margin *<val>* -right_margin *<val>* -spacing *<val>* -font *<val>* $

where:

-width *<val>* Indicates the horizontal width of the text stripe in pixels, where:

- 0 Represents the A4 format (215 mm, 1728 pixels, normal resolution) (default).
- 1 Represents the B4 format (255 mm, 2048 pixels, normal resolution).
- 2 Represents the A3 format (303 mm, 2432 pixels, normal resolution).

-left_margin *<val>* Specifies the left margin of this text stripe, from 0 to 1.2 inches in .1 inch increments. The default is .5 inch.

-right_margin *<val>* Specifies the right margin of this text stripe, from 0 to 1.2 inches in .1 inch increments. The default is .5 inch.

-spacing *<val>* Sets the line spacing, from 0 to 255. The default is 2.

-font *<val>* Changes the font (currently not supported).

Example:

```
$ TEXT -w 0 -l .5 -r .5 -s 2 $
```

$ IMAGE

Note: The `$ IMAGE` command is not supported in Release 4.0.

$ OVERLAY

Note: In Symposium OPEN IVR, fax overlays are only available when using the GammaLink fax card. They are not supported by Brooktrout in this release.

The `$ OVERLAY` command allows you to overlay the ASCII fax data file with a TIFF file. The syntax for this command follows:

`$ OVERLAY -path` *`<val>`* **`-file`** *`<val>`* `$`

where:

`-path` *`<val>`*
Specifies the fax set number that contains the fax image file. This value may be in decimal format (0-255) or hexadecimal format (0x00-0xff). For example:

- `00` identifies fax set 0
- `01` identifies fax set 1 (default)
- `0x2a` identifies fax set 42 in hexadecimal format.

`-file` *`<val>`*
Identifies the name of the TIFF file to be used as an overlay. The TIFF file must be loaded on the MRS and assigned to a fax set. Refer to the options on the `/sci/files/fax` menu. The file name must be the same as it is stored in the fax set. To view the contents of the fax set, use the **`map`** option on the `/sci/files/fax` menu.

If the path or TIFF file specified in the $ OVERLAY command does not exist, the fax transmission is aborted and the application takes the error branch.

Include this command in your ASCII fax data file, and the TIFF image is superimposed on the contents of the ASCII data file when sending a fax. This command is particularly useful for superimposing text on a form, where the form is stored as a TIFF file.

TIFF files can be created using any commercially available drawing or paint program that can save graphical images in TIFF format.

$OVERLAY caveat

GammaLink Fax ignores any $OVERLAY command occurring in a file in which one or more $IMAGE commands have already been encountered (since such a file may not be converted to TIFF format on the host).

CLIFF example

Example 1. Fax striping

This example pertains to both PEB-based and SCbus-based platforms. Note that in this example you would actually replace *logo* with the actual location of the image you wish to print.

```
$ DOC_CNTRL  -c y  -r 0  -w 0  $

$ PAGE_CNTRL  -t 1  -b 1  -l 143  -p 0  $

$ HEADER  -l 0  -m 3  -s ”Nortel Corp  %A  %d-%m-%y
%I:%M:%S  %p page %P”  $

$ TEXT -w 0  -l .5  -r .5  -s 2  $

$ IMAGE -p 01  -f  logo  $

$ TEXT -w 0  -l .5  -r .5  -s 2  $
```

This line of text has margins of .5 inches, a pixel resolution of 1728, and spacing of 2.

*

*

*

```
$ TEXT -w 0  -l .5  -r .5  -s 2  $
```

This is the end of the first text.

```
$ IMAGE -p 01  -f  logo  $
$ TEXT -w 2  -l .1  -r .1  -s 20  $
```

This line of text has margins of 1 inch, a pixel resolution of 2432, and spacing of 20.

*

*

```
$ TEXT -w 1  -l 1.2  -r 1.2  -s 2  $
```

This is the end of the second text.

Example 2. Fax Overlay

In this example, the TIFF file “logo1” located in fax set 01 is used to overlay the ASCII text file.

```
$ OVERLAY -path 1 -file logo1 $
```

CAUTION
Risk of data Loss

In Release 4.0 fax overlays are only supported by the GammaLink fax card.

Chapter 9: Testing your Fax setup

The NTTEST software is installed during the system installation, and is resident on the system. It includes diagnostics for testing various applications on your system, including your ASR configuration. For further information about NTTEST, refer to Chapter 24, "Verification test (NTTEST), in the *Installation, Upgrade, and Maintenance Guide*.

It is assumed that those testing the ASR applications are familiar with standard system administration procedures, the details of which are documented in the *System Administration Guide*.

1 Load/run NTTEST and its applications

Run the script `nttest_str`. This loads NTTEST and all its sub applications.

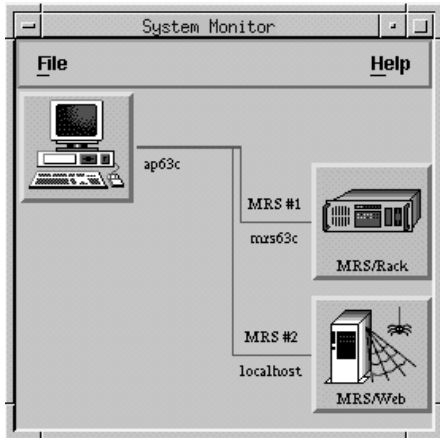
2 Verify the channel alignment

Note: Your system must have been configured already. It should be set to Ring trip, Input, and LoopStart Initialization type as the preferred configuration. Any telephone company changes required would be done through editing of the trunk type files.

a Access the System Administration pull-down menu by pointing and clicking mouse button 1 on the System Administration icon (MRS box with arrows) on the control panel.

b Select the System monitor menu option which will open the System Monitor administration menu. When the outline of a box shows up, move the box to a space on the desktop where you can view it. Select mouse button 1 to show the system monitor.

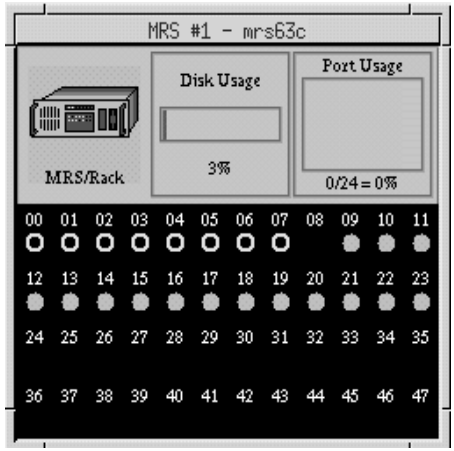
Figure 9-1: System monitor



Note: For more information on how the System Monitor works, please refer to the Release 4.0 *Symposium OPEN IVR System Administration Guide*.

c Select the MRS icon to display the system status window (Figure 9-2). This window contains information on the various channels status.

Figure 9-2: Status Information



Gray Ring means outgoing. Gray circle means incoming on the channel monitor. When the application is loaded, channels assigned, and the application started, the gray circle will change to a yellow ring.

3 Verify/modify the channel alignment

Once the test application is loaded, you can assign channels to the application and enter all incoming channels.

If the channels assigned to the test do not match those currently configured on your system (as seen on your system monitor), make the appropriate adjustments. Else continue to Step 5.

To set channels, follow these steps.

a In the Application Management window, press F3.

b Enter the channel range and press <Enter>.

The channels you enter will be listed in the channel range column of the Application Management screen.

4 Test the Fax setup

Using NTTEST to test the Fax setup involves first sending a fax to the IVR system, and then receiving the same information back in a fax from the IVR system.

Sending a fax to an IVR system

a Place the letter you want to send on the fax machine. From the Fax machine, make a phone call to your IVR system to activate NTTEST (the number should be available from your system administrator).

The system begins a series of prompts, including `Press 3 for fax test`.

b Press **3** to select the fax option.

The system prompts `Press 1 for send fax`.

c Press **1** to send a fax to the IVR system.

The system prompts `When you hear the beep, press start on your fax`.

d Press the **start** button on your fax machine.

This initiates the faxing of your letter to the IVR system.

Receiving a fax from an IVR system

The fax that you had sent to the IVR system has been stored in a mailbox. This part of the fax test calls the IVR system and asks for this stored information to be sent back.

e From the Fax machine, make a phone call to your IVR system to activate NTTEST. The system begins a series of prompts, including `Press 3 for fax test`.

f Press **3** to switch to the fax option.

The system continues prompting, including `Press 2 for receive fax`.

g Press **2** to receive a fax from the IVR system.

The system prompts `Press start on your fax`

h Press the **start** button on your fax machine.

i A fax comes in from the IVR system. Check that the information in the received fax is the same as that which was sent to the IVR system.

5 Stop the test application

To stop the test application, run the `NTTEST_stp` script. This will unload NTTEST and all the sub applications.

6 Exit Application Management

a To exit Application Management, press <F4> to access the Application Management main menu.

b Select `Exit`. The System Application management window closes.

Check the results

All completions of tests are recorded in the `event.log` file in the directory `/u/nortel/log.d`.

Appendix A: Fax card configurations

This appendix shows the layout, switch settings, and various configuration requirements for the following fax cards:

- GammaLink CP-*x*/SC series
- Brooktrout TR-114 series

It also presents the configuration rules for the PEB and SCbus environments, with graphical illustrations for each

Bus configuration rules

There are two kinds of bus configurations supported in Symposium OPEN IVR—PEB and SCbus. The following sections present the connectivity rules for each, along with some supporting graphical examples.

PEB bus connectivity rules

The PCM Expansion Bus (PEB) is a digital voice bus for sending voice across different voice processing cards and components in the same PC. It is an open platform, yet has strict rules regarding card positioning and termination. Cards on any one PEB must have a contiguous slot allocation (e.g. a card on PEB 2 must not be inserted in a slot between the first card and last card of PEB 1). The following are PEB connectivity rules.

Connecting the ends

For all configurations with more than one PEB card in the system, one end of the PEB must always be connected to either a high density card(s) or a telco interface card(s).

For low density configurations, the opposite end of the PEB must always be connected to a voice processing card(s).

Ordering and termination

Option cards must be installed between the telco interface card(s) and the voice processing card(s) for low density configurations. For high density configurations using option card(s), an option card should terminate the PEB.

The first and the last card on the PEB must be terminated, while other cards should not be terminated.

In cases where a high density card is the only card in the system, such as D/240SC-T1 or D/41ESC, a PEB terminator should still be installed in the RES position on the card.

Interrupt termination

Interrupt terminator JP7 must only be installed on the D/121B or D/81A card furthest from the CPU.

In a high density configuration, interrupt terminator JP7 should be installed on the voice recognition card furthest from the CPU.

Handling multiple LSI cards

If more than one LSI/120 or LSI/80 interface card is installed on the same PEB cable, only the first card (time slots 00-11 for LSI/120 or 00-07 for LSI/80) should be clock master at the end of the PEB. On that card SW1-3 must be OFF. All other LSI/120 or LSI/80 cards on the same PEB must have SW1-3 in the ON position.

Handling the 60-port E1 card

Two PEBs must be used with the 60 port E1 card. Both PEBs attach to the E1 card, and extend to the left and right side of the card. A D/320SC voice processing card should be connected on the end of each PEB. Option cards are placed between the E1 card and each D/320SC card. See Figure A-4.

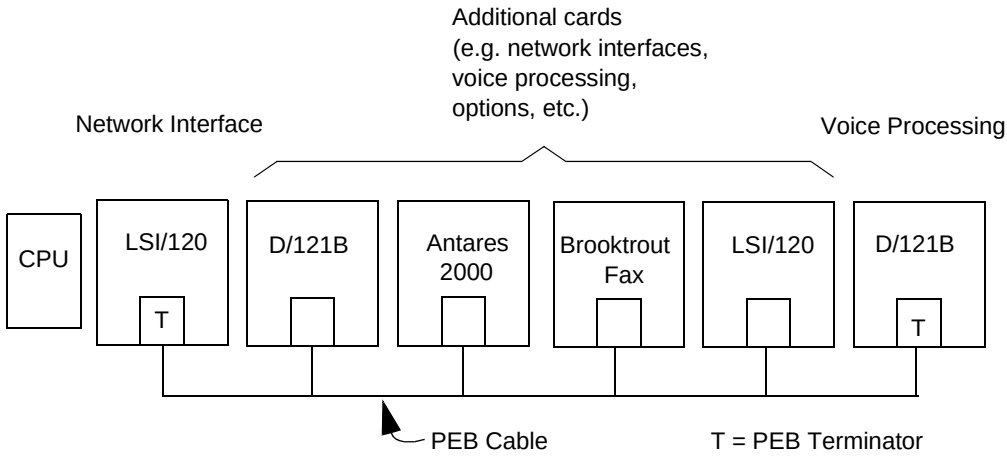
PEB connectivity examples

The figures that are included in this section show the cards that must be terminated on the PEB. Terminators are identified as “T” for an external terminator that must be plugged into a socket on the card, and “t” for an internal terminator that is built into the card. The only cards that have an internal terminator are the Aculab 30- and 60-port E1 cards. As a result, they do not require external PEB terminators to be installed. The internal terminator is installed by the card manufacturer, and cannot be removed.

Position of option cards

The PEB can support up to two 12-channel loopstart network interface cards. The option cards (e.g. fax, voice recognition) whose resources are available to all channels on the PEB should be installed between the end cards, as shown in the figure below. The order of the option cards is not important.

Figure A-1: Multiple cards on a PEB



Additional PEB connectivity examples

The following figures graphically illustrate PEB cabling rules.

Figure A-2: Cabling when using the D/240SC-T1 (terminate in res position) card

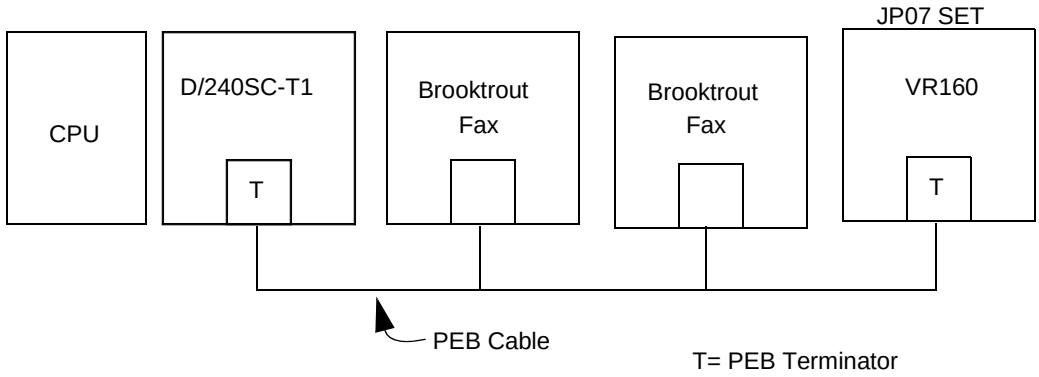


Figure A-3: Cabling when using the 30 port E1 card

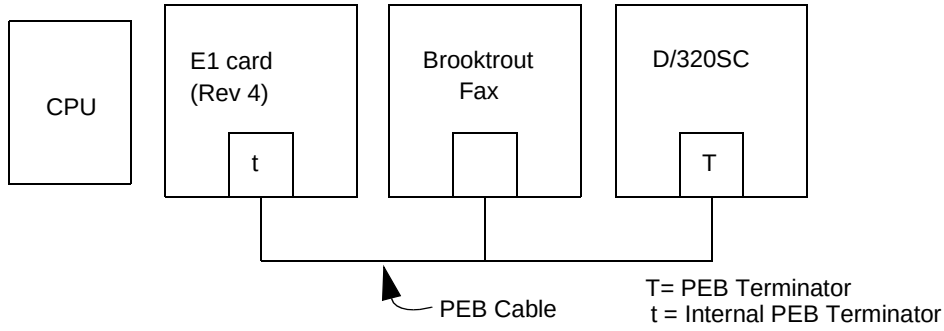


Figure A-4: Cabling when using a 60 port E1 card

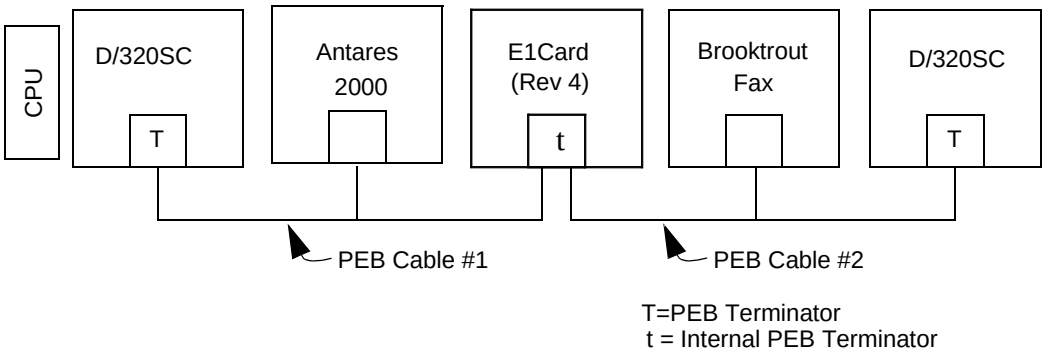
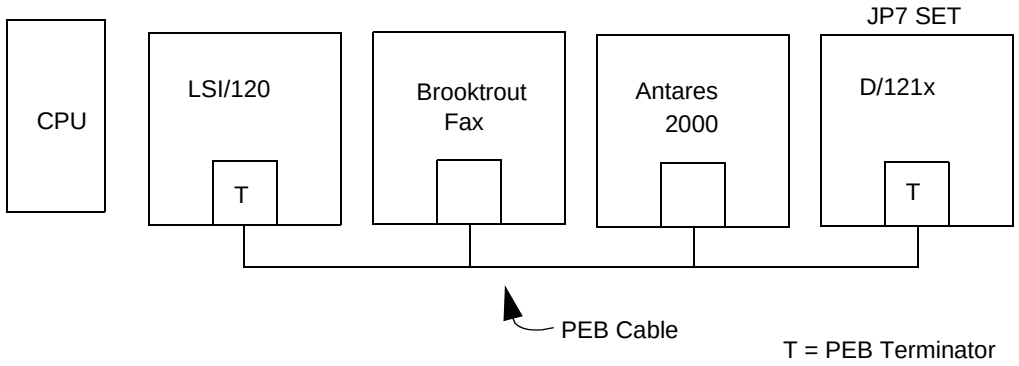


Figure A-5: Cabling when using a single loopstart card



SCbus connectivity rules

The SC (Serial Computing) Bus is a serial time division multiplexed bus for carrying information between hardware devices in a signal processing mode. The SCbus can support up to 1024 bidirectional timeslots in a PC implementation, or up to 2048 timeslots in a backplane implementation. The SCbus uses 16 synchronous data lines for carrying data, and a dedicated message channel for carrying signalling information and messages between devices.

Basic SCbus rules

The following are SCbus connectivity rules:

- Termination is not used on SCbus cards.
- The SCbus cable is identical to the PEB cable.
- Only one SC Cable must be used with the 60 port E1 card. The SC cable attaches to the E1 card, and extends to the left and right side of the card. A D/320SC voice processing card should be connected on the end of each SC cable. Option cards are placed between the E1 card and each D/320SC card.

SCbus connectivity examples

The following figures graphically illustrate SCbus cabling rules.

Figure A-6: Cabling when using the D/240SC-T1 card

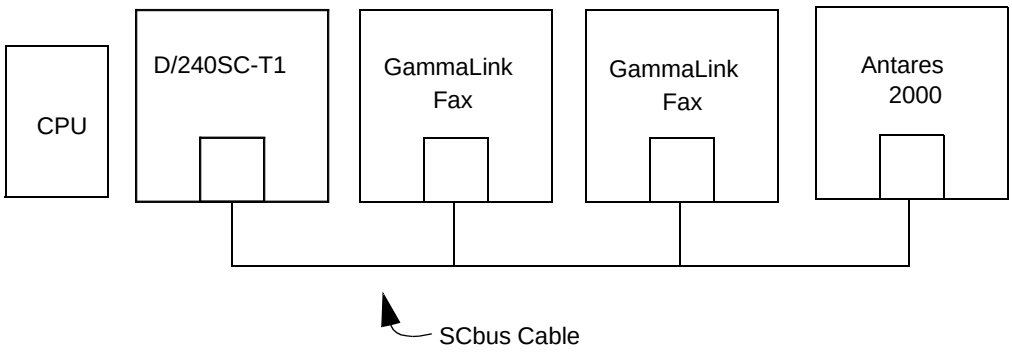


Figure A-7: Cabling when using the 30 port E1 card

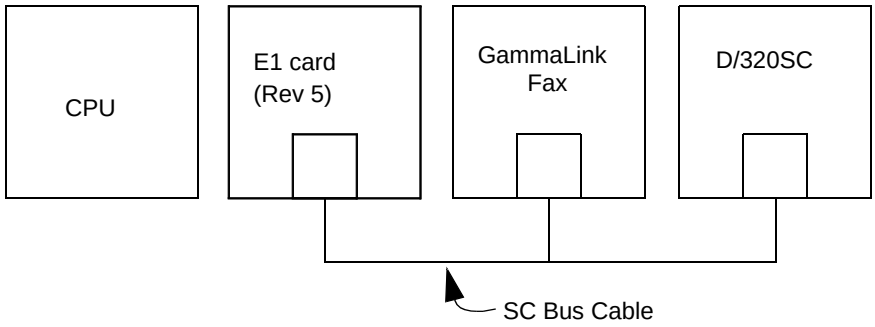


Figure A-8: Cabling when using a 60 port E1 card

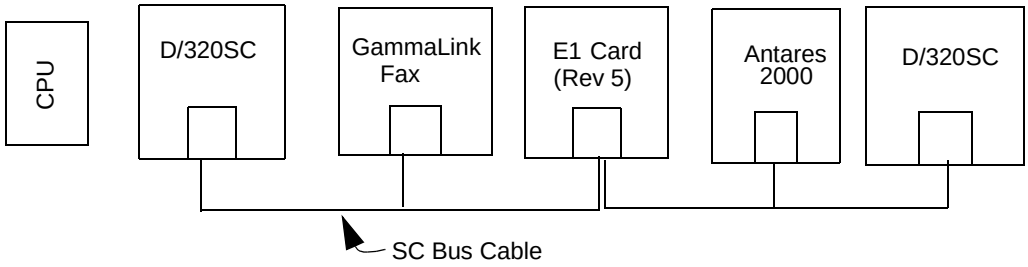


Figure A-9: Cabling when using the D/160SC card

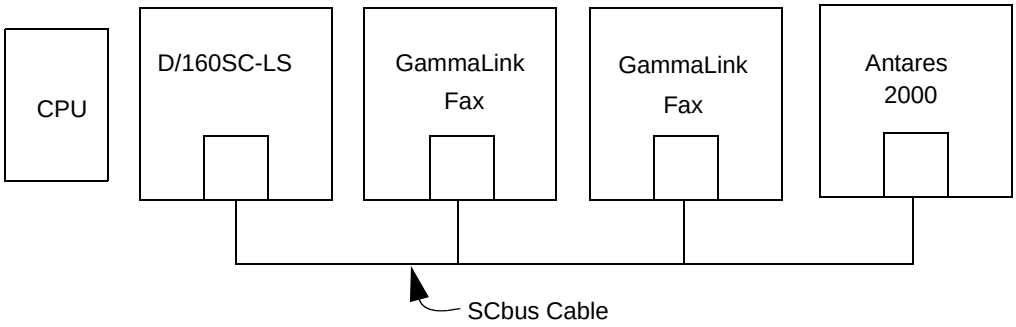
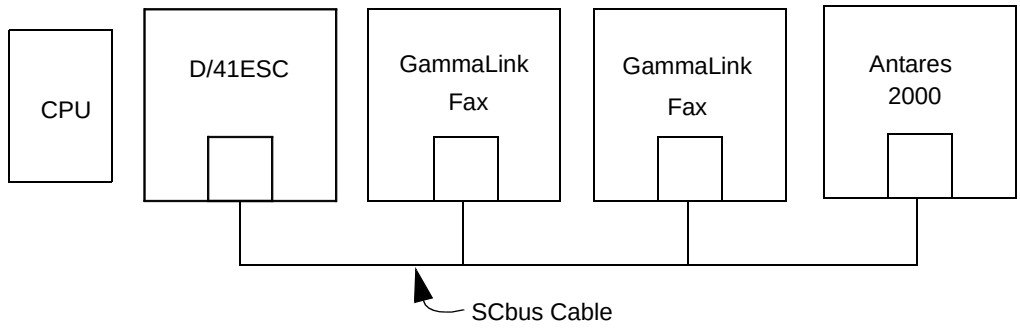


Figure A-10: Cabling when using the D/41ESC card



GammaLink card configurations

The GammaLink fax card offers 4, 6, or 12-port fax capabilities for the IVR system. Each GammaLink card is a microprocessor-based facsimile modem with its own CPU, custom ASIC, 512Kb of RAM, and 32 Kb PROM. The GammaLink cards do not require any IRQs, DMA, or shared memory. These features allow each fax channel to function as an independent fax subsystem interfacing with the main IVR system.

Addressing conflicts. The GammaLink Fax option cards can potentially cause addressing conflicts with other devices in your MRS. If a conflict occurs, the cards will not initialize properly after you reboot the system. If a conflict occurs, change the settings on the card.

Bus mode. The CP-4/SC card is supported in SCbus mode only. Daughter Card SW1-1 must be set to OFF (which indicates SCbus operation). No terminators are necessary for SCbus mode.

Encoding method. Daughter Card SW1-5 indicates whether the card is configured for mu-Law or A-law. SW1-5 set to ON indicates mu-Law, SW1-5 set to OFF indicates A-law.

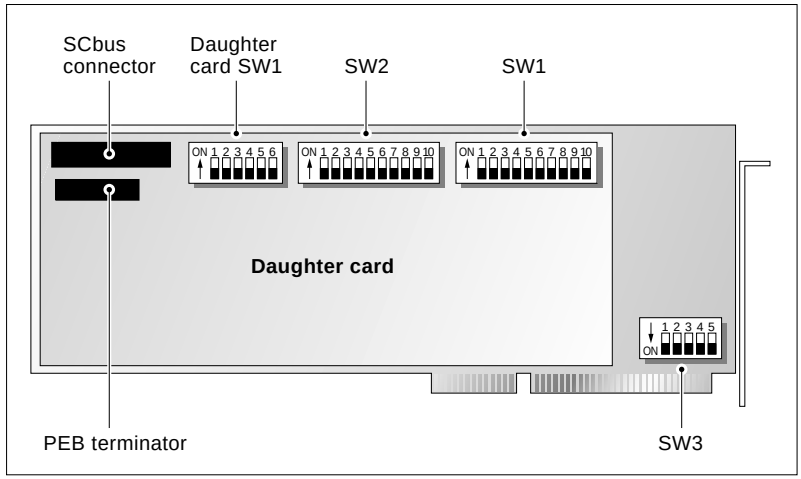
Number of ports. The maximum number of fax ports supported per system is 72, not exceeding six fax cards of any type (CP4, CP6, or CP12).

Card mix. GammaLink CP/4 and GammaLink CP/6 cards should not be mixed in the same chassis.

GammaLink CP-4/SC 4-port card

Figure A-11 presents a graphical representation of the CP-4/SC card.

Figure A-11: The CP-4/SC 4-port card



Note: During the installation of the CP-4/SC card, the SCI installation utility lists cards 0–7 as cards 15–8 in descending order.

GammaLink CP-4/SC address settings

The address settings for the CP-4/SC card are as follows:

Table A-1: CP-4/SC switch SW3 I/O address assignments

Card no.	1	2	3	4	5	Chan 0	Chan 1	Chan 2	Chan 3	SC2000
0	on	on	on	on	off	350–353h	360–363h	370–373h	250–253h	358–35Ch
1	off	on	on	on	off	260–263h	270–273h	150–153h	160–163h	158–15Ch
2	on	off	on	on	off	100–103h	104–107h	108–10Bh	10C–10Fh	168–16Ch
3	off	off	on	on	off	110–113h	114–117h	118–11Bh	11C–11Fh	140–144h
4	on	on	off	on	off	280–283h	284–287h	288–28Bh	28C–28Fh	2B0–2B4h
5	off	on	off	on	off	290–293h	294–297h	298–29Bh	29C–29Fh	148–14Ch

Card no.	1	2	3	4	5	Chan 0	Chan 1	Chan 2	Chan 3	SC2000
6	on	off	off	on	off	120–123h	124–127h	128–12Bh	12C–12Fh	2C0–2C4h
7	off	off	off	on	off	130–133h	134–137h	138–13Bh	13C–13Fh	2B8–2BCh

Note: GammaLink CP/4 and GammaLink CP/6 cards should not be mixed in the same chassis.

Setting card I/O addresses. SW3 sets the card I/O address as shown in Table A-1. Each card in the system must have a unique I/O address. Each physical channel represents a group of four I/O addresses (see Table A-1).

WARNING

Your system has the potential for an I/O address conflict. As a result, you may need to change the I/O addresses on one or more cards. Physical channels do not need to be sequential or be in any particular order, as long as you properly enter configuration information through the SCI.

Table A-2: CP-4/SC daughter card switch SW1 functions

	1	2	3	4	5	6
SW1	off	on	off	off	note 3	off

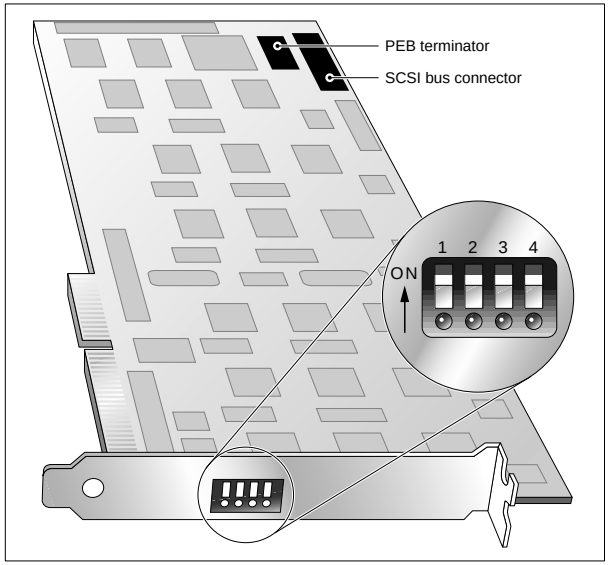
Table A-3: CP-4/SC base card SW1 and SW2 settings

	1	2	3	4	5	6	7	8	9	10
SW1	on	off	on	off	on	off	on	off	off	off
SW2	off	off	off	off	off	off	off	off	off	off

GammaLink CP-6/SC 6-port card

Figure A-12 presents a graphical representation of the CP-6/SC card.

Figure A-12: The CP-6/SC 6-port card



GammaLink CP-6/SC address settings

The address settings for the CP-6/SC card are as follows:

Table A-4: CP-6/SC switch SW1 I/O address settings

Card no.	1	2	3	4	Addresses	SC2000	FPGA
0	off	off	off	off	350, 360, 370 250, 260, 270	358–35B	35C
1	on	off	off	off	150,160,100 104, 108, 10C	158–15B	15C
2	off	on	off	off	110, 114, 118 11C, 280, 284	168–16B	16C
3	on	on	off	off	288, 28C,290 294, 298, 29C	140–143	144

Card no.	1	2	3	4	Addresses	SC2000	FPGA
4	off	off	on	off	120, 124, 128 12C, 130, 134	148–14B	14C
5	on	off	on	off	138, 13C, 180 184, 188, 18C	2B0–2B3	2B4
6	off	on	on	off	190, 194, 198 19C,1A0, 1A4	2B8–2BB	2BC
7	on	on	on	off	1A8,1AC,1B0 1B4,1B8,1BC	2C0–2C3	2C4

Setting card I/O addresses. SW1 sets the card I/O address as shown in Table A-4. Each card in the system must have unique I/O addresses.

CAUTION!
Risk of addressing conflict

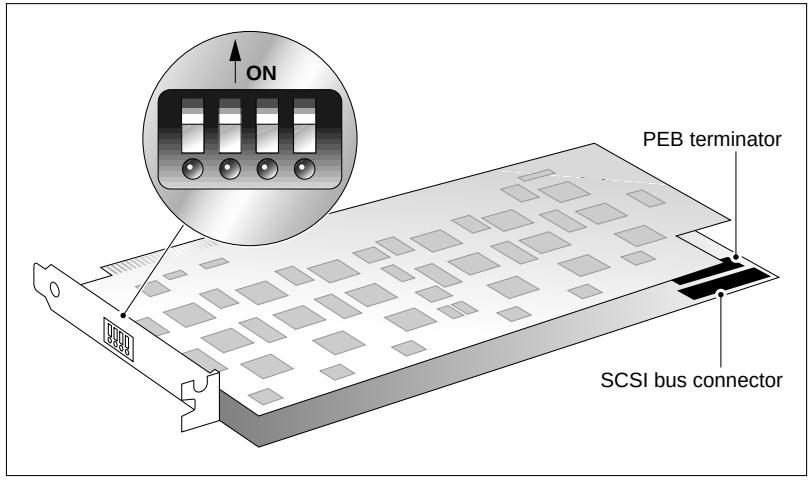
Your system has the potential for an I/O address conflict. As a result, you may need to change the I/O addresses on one or more cards. Physical channels do not need to be sequential or in any particular order, as long as you properly enter configuration information through the SCI.

Note: GammaLink CP/4 and GammaLink CP/6 cards should not be mixed in the same chassis.

GammaLink CP-12/SC 12-port card

Figure A-13 presents a graphical representation of the CP-12/SC card.

Figure A-13: The CP-12/SC 12-port card



GammaLink CP-12/SC address settings

The address settings for the CP-12/SC card are as follows:

Table A-5: CP-12/SC switch SW1 I/O address settings

Card No.	1	2	3	4	Addresses	SC2000	FPGA
0	off	off	off	off	350h, 360h, 370h 250h, 260h, 270h 150h, 160h,100h 104h, 108h, 10Ch	358–35Bh	35Ch
2	off	on	off	off	110h, 114h, 118h 11Ch, 280h, 284h 288h, 28Ch, 290h 294h, 298h, 29Ch	168–16Bh	16Ch

Card No.	1	2	3	4	Addresses	SC2000	FPGA
4	off	off	on	off	120h, 124h, 128h 12Ch, 130h, 134h 138h, 13Ch, 180h 184h, 188h, 18Ch	148–14Bh	14Ch
6	off	on	on	off	190h, 194h, 198h 19Ch, 1A0h, 1A4h 1A8h, 1ACh,1B0h 1B4h, 1B8h,1BCh	2B8–2BBh	2BCh
8	off	off	off	on	1C0h, 1C4h, 1C8h 1CCh, 1D0h, 1D4h 1D8h, 1DCh, 1E0h 1E4h, 1E8h, 1ECh	2C8–2CBh	2CCh

Setting card I/O addresses. SW1 sets the card I/O address as shown in Table A-5. Each card in the system must have a unique I/O address. Each CP-12/SC card is essentially two CP-6/SC cards. Use only even card numbers when installing CP-12/SC cards (as shown in Table A-5).

CAUTION!

Risk of addressing conflict

Your system has the potential for an I/O address conflict. As a result, you may need to change the I/O addresses on one or more cards. Physical channels do not need to be sequential or in any particular order, as long as you properly enter configuration information through the SCI.

Brooktrout card configurations

The TR114 series Fax card (Rev 1 and 2, 1 Mbyte memory) offers two, four, or eight fax ports in a single ISA slot. Supported models of the TR114 series are TR114-IxT, TR114-IxP and TR114+IxP, where x is the number of fax ports on the fax card. Table A-6 presents a summary of the available Brooktrout fax cards.

Table A-6: Brooktrout fax card offerings

2 Port Fax Card	Brooktrout TR114-I2T Brooktrout TR114-12P Brooktrout TR114+I2P
4 Port Fax Card	Brooktrout TR114-I4T Brooktrout TR114-I4P Brooktrout TR114+I4P
8 Port Fax Card	Brooktrout TR114-I8T Brooktrout TR114-18P Brooktrout TR114+I8P

Identifying the board. The fax board's box clearly identifies the board model number, for example: TR114+I2P (1 MB). If the fax board's box is not available and no sticker is on the board identifying one of the supported models, use the assembly information written on a sticker on the soldered side of the board. The assembly information would be:

- 802-912-20 (unique to TR114+I2P 1 MB RAM board)
- 802-912-10 (unique to TR114+I4P 1 MB RAM board)
- 802-912-01 (unique to TR114+I8P 1 MB RAM board)

Each of the models is functionally identical, except for minor differences in transmission rates and switch naming.

Transmission rates. The TR114-I*x*T and TR114-IxP cards transmit faxes at 9.6 kbps. The TR114+IxP can transmit faxes at speeds up to 14.4 kbps. Nortel is currently shipping cards of the “+” variety.

Switch naming. Three revisions of the TR114-IxP (or +IxP, x=2, 4 or 8) board exist. They are all 100% interchangeable. The settings (I/O, IRQ, telephony bus) for all three revisions are the same, and the differences between the three revisions are limited to the naming of the jumper blocks and dip switches on the board**.**

To select	Oldest board uses switch	Recent board uses switch	Current board uses switch
the telephony bus	SW1	SW1	SW501
the I/O address	S2	S2	SW801
an IRQ line	J1 and J2 jumper blocks	renames J1 to J7, and J2 to J4	J1 and J2 combined into J503

PEB termination. TR114-IxP cards can operate in PEB mode only. PEB terminators must be installed only on the cards at the end of the PEB to ensure proper electrical characteristics of the PEB bus.

Installation positioning. Install fax option cards between non-fax option cards. Unless absolutely necessary, do not install terminators on fax cards. Install PEB terminators at both ends of the PEB cable only on non-fax option cards. In addition, terminate the PCM Expansion Bus at both ends to ensure proper electrical characteristics.

Maximum number of cards. The maximum number of TR114 cards in the system is six—regardless of the number of channels per card.

IRQ selection. Select an available interrupt request line. We recommend IRQ 14 for all systems with SCSI controllers.

Switch settings. Switch 1 (when turned on) provides IRQ termination and should be set to the OFF position for all TR114 cards in the system, except for the card farthest away from the CPU.

MVIP switch SW 801 must always be in the OFF position

I/O addresses. Each Brooktrout fax card installed in the system uses four I/O addresses per channel, plus four I/O addresses per base card.

- 2-port card uses 12 I/O addresses
- 4-port card uses 20 I/O addresses

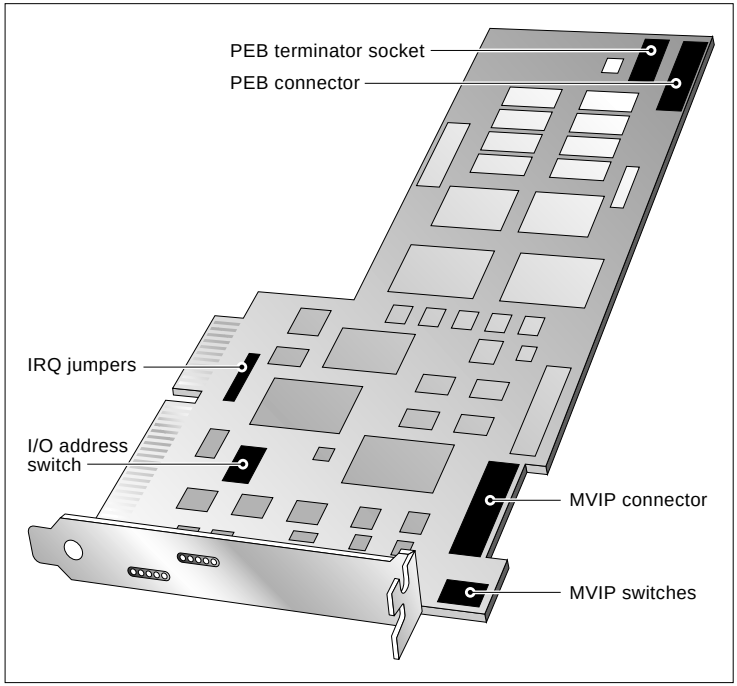
- 8-port card uses 36 I/O addresses

Encoding scheme. Brooktrout fax cards must be configured for the same encoding scheme as network interface models located on the same PEB bus (i.e., when installed on the same PEB bus with LSI/120, D/240SC-T1, etc., set the Fax Card encoding scheme to for u-Law; when installed on the same bus with E1/PRI, D/41ESC, or LSI/80 cards the encoding scheme must be set to A-Law). Encoding mu-Law vs. A-Law is done via the SCI configuration utility.

Brooktrout TR114-I2P 2-port card

Figure A-14 illustrates the two-port Brooktrout fax card TR114-I2P

Figure A-14: Brooktrout TR114-I2P 1 Mbyte card



Brooktrout TR114-I2P card settings

Table A-7 shows the switch settings for addressing the 2-port card.

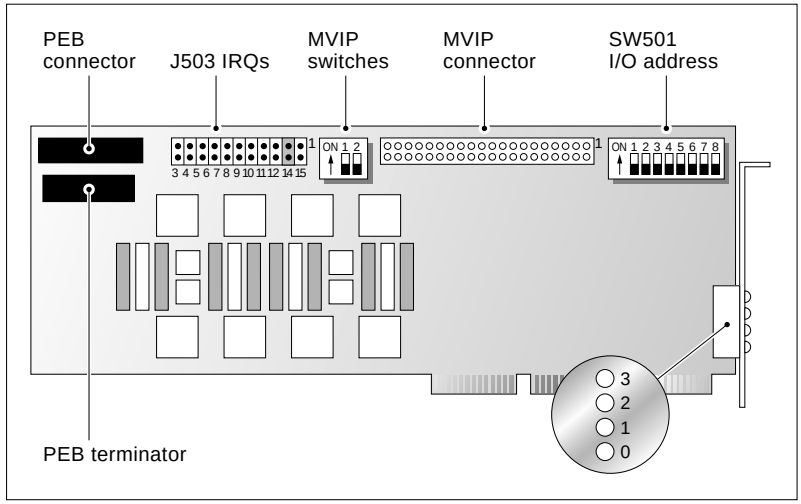
Table A-7: SW1 I/O addressing for 2-port card

Channels	1	2	3	4	5	6	7	8	I/O Address	Card #
Chan 0–1	on*	on	on	off	on	on	off	on	120–12Bh	Card 1
Chan 2–3	off*	off	on	on	off	on	off	on	148–153h	Card 2
Chan 4–5	off*	on	off	off	off	on	off	on	170–17Bh	Card 3
Chan 6–7-	off*	off	off	on	on	off	off	on	198–1A3h	Card 4
Chan 8–9	on*	on	on	on	off	off	off	on	1C0–1CBh	Card 5
Chan 10–11	on*	on	off	on	on	on	on	off	210–21Bh	Card 6

Brooktrout TR114-I4P 4-port card

Figure A-15 illustrates the four-port Brooktrout fax card TR114-I4P

Figure A-15: Brooktrout TR114-I4P card



Brooktrout TR114-I4P card settings

Table A-8 shows the switch settings for addressing the 4-port card.

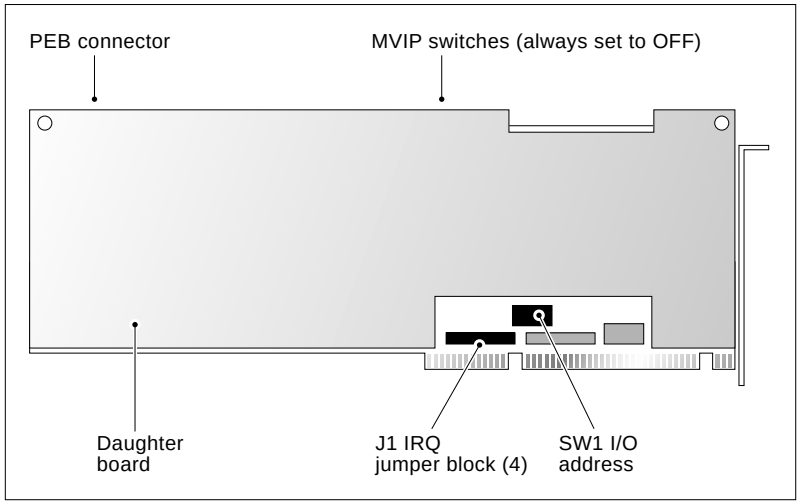
Table A-8: SW1 I/O addressing for 4-port card

Channels	1	2	3	4	5	6	7	8	I/O Address	Card #
Chan 0–3	on*	on	on	off	on	on	off	on	120–133h	Card 1
Chan 4–7	off*	off	on	on	off	on	off	on	148–15Bh	Card 2
Chan 8–11	off*	on	off	off	off	on	off	on	170–183h	Card 3
Chan 12-–5	off*	off	off	on	on	off	off	on	198–1ABh	Card 4
Chan 16–19	on*	on	on	on	off	off	off	on	1C0–1D3h	Card 5
Chan 20–23	on*	on	off	on	on	on	on	off	210–223h	Card 6

Brooktrout TR114-I8P 8-port card

Figure A-16 illustrates the eight-port Brooktrout fax card TR114-I8P.

Figure A-16: Brooktrout TR114-I8P 8-port Fax card



Eight port card settings (TR114-I8P)

Table A-9 shows the switch settings for the 8-port Brooktrout card.

Table A-9: SW1 I/O Addressing for 8-Port Card

Channels	1	2	3	4	5	6	7	8	I/O Address	Card #
Chan 0–7	on*	on	on	off	on	on	off	on	120–143h	Card 1
Chan 8–15	off*	off	on	on	off	on	off	on	148–16Bh	Card 2
Chan 16–23	off*	on	off	off	off	on	off	on	170–193h	Card 3
Chan 24–31	off*	off	off	on	on	off	off	on	198–1BBh	Card 4
Chan 32–39	on*	on	on	on	off	off	off	on	1C0–1E3h	Card 5
Chan 40–47	on*	on	off	on	on	on	on	off	210–233h	Card 6

Appendix B: Accessing the Service Console Interface

You can access the Service Console Interface (SCI) from a dumb terminal, a modem via the RS-232-C, or the application processor via the Ethernet.

See the following sections:

- "Using a terminal to access the SCI" on page B-2
- "Using a modem to access the SCI" on page B-3
- "Using the LAN to access the SCI" on page B-4
- "Accessing the SCI from an MRS/AP" on page B-5

Default account passwords

The default account passwords shipped with the system are as follows:

Account	Password	Comment
admin	admin1	site administrators on MRS, AP, and MRS./AP
service	service1	service account on MRS
user	user1	routine maintenance on MRS

Using a terminal to access the SCI

To use a terminal to access the SCI, follow these steps.

1 Connect a video terminal to the MRS (MRS/AP) system port B using an appropriate communications cable.

2 Set the terminal parameters as follows:

```
baud rate       2400 or 9600
duplex          Full
data bits       8
stop bits       1
parity          none
add LF          off
```

3 Press `<Enter>`.

The following message is displayed:

```
<system name>
MRS Service Access PortRevision 4.00
Copyright 1991-1997, Nortel Corp. All Rights
Reserved
Login:
```

4 At the `login:` prompt, enter the appropriate account name. The passwords for these accounts are listed in “Default account passwords” on page B-1.

5 After you log in, the system prompts you for your terminal type. If the default terminal type displayed is correct, press the `<Enter>` key; otherwise, type in the correct terminal type.

Note: VT100 and ANSI are sample terminal types that may be entered at the TERM> prompt.

Once this is completed, the SCI main menu is displayed.

Using a modem to access the SCI

Special modem instructions

To allow remote access for support and maintenance, a modem must be attached to your Nortel system. To take advantage of this feature, you must attach the modem between your Nortel system and the telephone network.

Nortel has tested and found the U.S. Robotics Sportster 9600/28.8/33.6 modems compatible.

U.S. Robotics 14.4 modems were not compatible and therefore are not included in this list.

Domestic customers

Domestic (U.S.) customers receive a modem with the Nortel system.

International customers

Because of the different telephone network regulations throughout the world, international (non-U.S.) customers do not receive a modem with the Nortel system. Nortel recommends that international customers consult their local telephone service provider to determine an appropriate modem (U.S. Robotics Sportster 9600/28.8/33.6 or the equivalent) for their installation.

Accessing the SCI by modem

To use the modem to access the SCI, follow these steps:

1 Connect the modem port on your MRS (MRS/AP) system using a standard modem cable.

2 From the remote location, dial in to the modem and wait for an answer. Once the modem is connected, press the <Enter> key.

The following message should display:

```
<system name>
MRS Service Access PortRevision 4.00
Copyright 1991-1997, Nortel Corp. All Rights
Reserved
login:
```

3 At the `login:` prompt, enter the appropriate account name. The passwords for these accounts are as listed in “Default account passwords” on page B-1.

4 After you log in, the system prompts you for your terminal type. If the default terminal type displayed is correct, press <Enter>, otherwise, type in the correct terminal type.

Note: VT100 and ANSI are sample terminal types that may be entered at the TERM> prompt.

Once this is completed, the SCI main menu is displayed.

Note: On an MRS/AP, if you log in as `root`, a # prompt is displayed. At the # prompt, type `/usr/vrs/tools/sci -b /usr/vrs` and press <Enter> to access the SCI menu.

Using the LAN to access the SCI

To access an MRS across a LAN, the MRS (MRS/AP) must be connected to either an Ethernet or Token Ring network, and the host that will access the MRS must support TCP/IP and telnet (or rlogin).

To access the SCI using the Ethernet, follow these steps:

1 At the host command line, enter **`telnet 128.1.1.111.`**

Note: If the Internet address for your MRS (MRS/AP) has been changed, enter the correct Internet address instead of the default address shown. This address is noted on your equipment list.

If the host is an X Window-based UNIX workstation, Nortel recommends that this command be issued from an xterm window.

Once the session is connected, the following message should display:

```
login:
```

2 At the login prompt, enter the appropriate account name. The passwords for these accounts are listed in “Default account passwords” on page B-1.

3 After you log in, the system prompts you for your terminal type. If the default terminal type displayed is correct, press <Enter>; otherwise, type in the correct terminal type.

Once this is completed, the SCI main menu is displayed, followed by the `/sci>` prompt.

Note: On an MRS/AP, if you log in as `root,` a # prompt is displayed. At the # prompt, type **`/usr/vrs/tools/sci -b /usr/vrs`** and press <Enter> to access the SCI menu.

Accessing the SCI from an MRS/AP

The modem method (page B-3) and the telnet method (page B-4) can be used to access the SCI from an MRS/AP.

Also, if you have direct access to the console of the MRS/AP system, you can log in and access the SCI by following these steps.

Press the <ALT>, <CNTRL>, and <F1> keys to access the command-line screen.

1 At the `login:` prompt, enter the appropriate account name. The passwords for these accounts are listed in "Default account passwords" on page B-1.

2 After you log in, the system prompts you for your terminal type. If the default terminal type displayed is correct, press <Enter>; otherwise, type in the correct terminal type.

Note 1: VT100 and ANSI are sample terminal types that may be entered at the TERM> prompt.

Note 2: If you log in as `root`, a # prompt is displayed. At the # prompt, type **`sci.start`** and press <Enter> to access the SCI menu.

Glossary

This glossary provides definitions of many of the terms as used in this guide. Some of these terms may have additional meanings not described here.

μ-law

Also called Mu-law. A form of Pulse Code Modulation (PCM), alternative to A-law. μ-law is used for the B channel of T1 streams, and is the commonly used North American standard.

A-law

A form of Pulse Code Modulation (PCM), in which the code word maps nonlinearly to the signal value. It is the standard compression algorithm used in digital communications systems of the European digital hierarchy. A-law code words are 8 bits wide. A-law is used for the B channel in ISDN.

acoustic coupler

A device (such as the Audio Interface Unit) used to interface between sound equipment and a port on the MRS/AP.

ADSI

Analog Display Services Interface. The Bellcore standard defining the protocol used for the flow of information between a piece of telephone equipment (such as a switch, server, or voice mail) and a subscriber's telephone, PC, data terminal, or other device with a screen.

agent

A person whose primary role is to handle customer calls that are transferred from a queue within a call center.

Analog Display Services Interface

See ADSI.

ANI

Automatic Number Identification. A protocol implemented in some trunk cards that records the calling number.

AP

Application Processor. A computer or workstation running the AP software in a distributed configuration. Symposium OPEN IVR combines one or more Multimedia Resource Servers (MRSs) with a general-purpose Application Processor (AP) to provide a versatile application development and run-time environment. The AP provides the environment for developing, managing, and controlling the IVR applications.

AP software

Nortel's premiere voice application development and management software package that runs on the Application Processor (AP). Application development capabilites are a licensed feature of AP software, through IVR Developer software.

Application Programming Interface. Software libraries that provide a standard access to services provided by a software package.

application

1 In Symposium OPEN IVR, a customized program that controls activity on one or more telephone trunks connected to an MRS voice system.

2 On a host computer, any type of program that carries out a task.

Application Editor

A utility used to graphically create or edit interactive voice response applications.

application processor

See AP.

Automatic Number Identification

See ANI.

branch

A pathway from one cell in an application to the next cell.

buffers

A part of computer memory used to store information from one cell and pass it to another cell.

call flow

A diagram of a Symposium OPEN IVR application.

caller

A person whose phone call is received or originated by a Symposium OPEN IVR application.

cell

The basic element of an application. Each cell causes some action to be performed—for example, playing a prompt to a caller. Each cell has a set of branches to other cells. After the cell performs its action, it determines which branch the application should follow to the next cell.

Control Panel

The Symposium OPEN IVR panel containing the buttons from which you can access the Administration, Information Database Editor, Report, Application, Prompt Management, and SmartHelp tools.

DTMF

Dual Tone Multi-Frequency. Touchtone (push button) dialing. DTMF is used to encode digits over analog telephone lines. Applications can collect information from callers by having them press telephone keys to create DTMF tones.

DTMF only mode

The default data input mode used by a Symposium OPEN IVR application to process caller input.

Dual Tone Multi-Frequency

See DTMF.

EXEC

The cell that executes an OPEN IVR application on the current channel.

field

The specific location of information (data) within a record in a relational database.

gain

The increase in signal power, measured in decibels, when the signal is boosted by an electronic device.

GDAT

Play Prompts and Get Data. A cell that allows you to play one or more prompts and collect up to 16 digits of input from the caller.

host computer

A networked computer that provides applications and services to other networked computers. The VT100 Gateway product sends information to and receives information from the host computer via the TRS.

IRQ

Interrupt Requests (also called hardware interrupts). They are a way that a device signals the data bus and the CPU that it needs attention.

IVR Developer

A licensed component of AP software that provides application development tools to graphically create or edit interactive voice response applications.

license file

A file which reflects the various product licenses purchased for your system. Whenever you modify any of the options available on an MRS with Symposium OPEN IVR MRS software 4.0 or greater, you need to load a new license file.

MF tones

Multifrequency tones. These are tones used by ANI. Symposium OPEN IVR applications can receive and store MF digits when the ANI option is in use.

MRS

Multimedia Resource Server. Symposium OPEN IVR combines one or more Multimedia Resource Servers (MRSs) with a general-purpose Application Processor (AP) to provide a versatile application development and/or run-time environment. The MRS provides the telephony, information processing (voice, fax, speech recognition, and text-to-speech) environment.

MRS/AP

A single unit that runs a "folded" configuration; that is, a configuration that includes both the Multimedia Resource Server and the Application Processor. The MRS/AP contains the functionality of the other platforms, but in a single hardware unit.

MRS/Rack

A unit comprising a rack-mountable Application Processor (AP) and a rack-mountable Multimedia Resource Server (MRS). Multiple MRS/Racks can be installed in cabinets and stacked to take up less room.

MRS/Tower

The MRS/Tower platform is comprised of an Application Processor (AP) and a Tower Multimedia Resource Server (MRS).

multifrequency tones

See MF tones.

Multimedia Resource Server

See MRS.

mu-law

Also called μ-law. A form of Pulse Code Modulation (PCM), alternative to A-law. Mu-law is used for the B channel of T1 streams, and is the commonly used North American standard.

node

A grouping composed of an AP (running Symposium OPEN IVR) connected to one or more MRSs.

overlay

A fax overlay allows the superimposing of a TIFF file onto the ASCII fax data file. In Release 4.0 fax overlays are only supported by the GammaLink fax card.

parameter

A variable used to define the function of Symposium OPEN IVR cells. You set parameters in the parameter window for each cell (when using the Application Editor), or in the cell window (when using the character-based Application Editor).

PCM

Pulse Code Modulation. A method that uses a sequence of discrete integers as code words to describe a time-varying signal. Each integer code word describes the signal level at a point in time.

PDAT

Play Prompts with Data. A cell that allows you to play prompts to announce the contents of a buffer. The buffer content is read according to the specified type.

PEB

PCM expansion bus. A digital voice bus for sending voice across different voice processing cards and components in the same PC. It is an open platform.

prompt

A voice recording that helps lead a caller through a Symposium OPEN IVR application.

Prompt Management tools

A set of tools, accessed from the Symposium OPEN IVR Control Panel, that is used to record, load, and update prompts.

record

1 To store sound on tape or disk for later play back.

2 In a database, a group of related data items (fields) treated as one item.

SCbus

Signal Computing bus—the standard bus for communication within an SCSA node. It is a serial time division multiplexed bus for carrying information between hardware devices in a signal processing mode. SCbus features a hybrid bus architecture consisting of a serial message bus for control and signalling, and a 16-wire TDM data bus.

Send Fax

See SFAX.

session

1 A connection to a host computer as defined in the `trs.conf` and `vt100.ctl` files, representing a terminal connection.

2 A connection between two systems for the exchange of user data. Sessions are between logical units (LUs).

SFAX

Send Fax. Cell that sends one or more faxes to a destination fax machine.

socket

An end point (portal) from one TCP/IP application to another.

striping

A feature which allows the addition of images such as logos and signatures with ASCII text on a fax cover page. Embedded text commands in the Fax Data file designate the placement of images and text and control some of the aspects of text layout as well.

subscriber

A person serviced by a voice processing application (such as voice mail).

system administrator

A person responsible for configuring MRSs, installing and running Symposium OPEN IVR applications, managing prompts, and running reports.

Text-to-speech

Text-to-speech (TTS) is the process of converting text—usually in the form of ASCII files—to speech output. It is used in applications where it is inconvenient or impossible to record a human speaker.

TIFF

Tagged Image File Format. TIFF provides a way of storing and exchanging digital image data. Originaly developed by Microsoft Corp., Aldus Corp., and major scanner vendors to help link scanned images with popular desktop publishing applications, it is now used in many different of software applications, ranging from medical imagery to fax modem data transfers. (It does not mean “Took It From a Fotograph”.)

Trunk

A communication line between two switching systems, frequently referred to as a port. Trunk numbering starts at 1.

VINP cell

An OPEN IVR cell which toggles data input mode between voice input and DTMF only (default) mode.

voice storage number

See VSN.

VSN

Voice storage number. Internal numbering system used by the MRS for prompts, messages, and faxes (if the fax option is installed); Symposium OPEN IVR uses its own numbering system.

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